A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.14 Habitats Regulations Assessment (HRA) Report (clean)

APFP Regulation 5(2)(g)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

September 2020

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1. INTRODUCTION

1.1. OVERVIEW

1.1.1. This Habitats Regulation Assessment (HRA) Report (this Report) relates to an application made on 7 July 2020 by Highways England (the Applicant) to the Secretary of State for Transport via the Planning Inspectorate (the Inspectorate) for a Development Consent Order (DCO) for the A1 in Northumberland: Morpeth to Ellingham (the Scheme). The Scheme comprises the following:

a. Part A: Morpeth to Felton (Part A) is located on the A1 between Warrener's House Interchange at Morpeth and the existing dual carriageway at Felton. It is approximately 12.6 km in length.
b. Part B: Alnwick to Ellingham (Part B) starts approximately 15 km north of the northern extent of Part A, is located along the A1 between Alnwick and Ellingham and is approximately 8 km in length.

1.1.2. A detailed description of the Scheme can be found in **Chapter 2: The Scheme, Volume 1** of the Environmental Statement (ES) (**Application Document Reference: TR010041/APP/6.1**).

1.1.3. The DCO application was accepted by the Inspectorate for examination on 4 August 2020. This Report has been updated in response to a Procedural Decision issued by the Examining Authority (ExA) on 5 August 2020. The Procedural Decision requested that the footnotes to the Planning Inspectorate screening matrices (presented in **Appendices B and E** of this Report) are "*revised to provide specific cross references to the documents and passages contained therein where the evidence is located*".

1.1.4. A Habitats Regulations Assessment Addendum Report (**Application Document Reference: TR010041/APP/6.14**) has also been produced that presents combined matrices for Part A and Part B in relation to three specified European Sites, as requested by the ExA in the Procedural Decision. Combined matrices are therefore presented within the Addendum Report for the following European Sites:

a. Northumbria Coast SPA
b. Northumbria Coast Ramsar
c. Northumberland Marine SPA

1.1.5. This updated Report and the Addendum Report supersedes the Habitats Regulations Assessment Report submitted at application on 7 July 2020. This Report has been prepared to comply with the requirements of 5(2)(g) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which requires an application for a DCO to be accompanied by "*any report, identifying any European site to which regulation 48 of the Conservation (Natural Habitats & c.) Regulations 1994 applies, or any Ramsar site, which may be affected by the proposed development, together with sufficient information that will enable the Secretary of State to make an appropriate assessment of the implications for the site if required by regulation 48(i)*".

1.1.6. This Report has been produced to inform the HRA of the Scheme and comprises a No Significant Effects Report. Part A and Part B were originally proposed to be the subject of separate applications for DCOs but have now been combined into a single application for a DCO in respect of the Scheme as a whole. This HRA covers the Scheme in its entirety.

1.1.7. The approach taken to the assessment of Parts A and B within this Report and the conclusions drawn for the assessment of each part separately have been agreed upon by Natural England. For Part A, the Applicant submitted two Draft HRA Screening Assessments to Natural England (the second addressing Natural England's comments following a review of the first draft). Natural England's responses, received by email on 23 November 2018 and 9 May 2019, confirmed approval of the approach. For Part B, Natural England's response was received by email on 27 November 2019, and confirmed their approval of the approach. Natural England's agreement is evidenced in **Appendix C** (Part A) and **Appendix F** (Part B) of this Report and also captured in **Appendix 4.2: Environmental Consultation, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1).**

1.2. PURPOSE OF THIS REPORT

1.2.1. Under the requirements of European Council Directive 92/43/EEC (the Habitats Directive) (**Ref. 1**) and the Council Directive 2009/147/EC (the Birds Directive) (**Ref. 2**), all Member States are required to implement a network of protected sites and maintain their ecological integrity. The sites in this network are collectively termed 'Natura 2000 Sites'. The aim of the network of Natura 2000 Sites is to maintain long-term survival of Europe's most valuable and threatened species and habitats.

1.2.2. The information contained in this Report is required to inform the decision as to whether an Appropriate Assessment (AA) is required, in compliance with Regulations 62 to 69 of the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) (**Ref. 3**), implementing Article 6(3) of the Habitats Directive.

1.2.3. The core requirements of the Habitats Directive in respect of Natura 2000 Sites are given in Article 6 (3) as follows:

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*."

1.2.4. This Report is a screening report, the purpose of which is to provide an informed decision as to whether a project is likely to have a significant effect (LSE) on a European site (either alone or in combination with other plans or projects). The Report has been prepared in accordance with the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 4, '*Assessment of Implications on European Sites'* (HD44/09) (**Ref. 4**), Interim Advice Note

(IAN) 141/11 '*Assessment of Implications on European Sites*' (**Ref. 5**) and the Inspectorate *Advice Note 10 Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects* (**Ref. 6**). The Inspectorate Advice Note 10 and HD 44/09 are the principal sources of guidance for HRA for road schemes and IAN 141/11 supplements this, with respect to road schemes that are categorised as Nationally Significant Infrastructure Projects (NSIP), under Section 22 of the Planning Act 2008.

1.2.5. Some DMRB guidance documents were updated in late 2019 (and associated IANs replaced), by which time the HRA for the Scheme was largely complete. The update of the DMRB also followed agreement received by Natural England regarding the approach taken and conclusions drawn for Parts A and B. However, a sensitivity test has been undertaken either to demonstrate that the assessments reported in the ES are already compliant with the updated guidance, or to identify any changes to the conclusions of the assessments as a result of the updated guidance (determined through further assessment). The previous DMRB guidance (**Ref. 4**) and IAN 141/11 (**Ref. 5**) were superseded by LA 115 Habitats Regulations Assessment (**Ref. 7**). The wording of the updated guidance is clearer, although there are no major changes in the content or changes to the approach of the assessment. Therefore, this Report details assessments that are compliant with the updated DMRB (**Ref. 7**). A full summary account of the sensitivity test is presented in **Appendix 4.5: DMRB Sensitivity Test, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

1.2.6. Regulation 63 of the Habitats Regulations (**Ref. 3**) requires the competent authority[1], before deciding to give any consent, permission or other authorisation, to undertake an AA of the implications for the conservation objectives of a given European site, where a project:

a. Is likely to have a significant effect on a European site (either alone or in combination with other plans or projects).
b. Is not directly connected with or necessary to the management of the site.

1.2.7. The following designations fall within the definition of a European site (Natura 2000 Site):

a. Ramsar sites, including potential sites (included as a matter of convention in the UK)
b. Special Areas of Conservation (SACs), including candidate or possible SACs (cSACs or pSACs)
c. Special Protection Areas (SPAs), including potential SPAs (pSPAs)
d. Sites of Community Importance (SCIs)

1.2.8. In this Report, these are referred to as European Sites.

[1] Note that, under Regulation 7 of the Habitats Regulations for a DCO application the competent authority is the relevant Secretary of State – here, the Secretary of State for Transport.

1.3. SITES CONSIDERED IN THE ASSESSMENT

1.3.1. In accordance with the approach adopted in HD44/09, the general intention is to take account of European Sites within 2 km of a proposed highway scheme or within 30 km in the case of European Sites for which bats are one of the qualifying interests. However, the 2 km distance would be extended if the scheme lies upstream or downstream of a watercourse designated as a European Site, or if the scheme has the potential to impact the flightpaths or feeding grounds of species of birds outside an SPA or pSPA for which those species have been designated.

1.3.2. Due to the relatively large-scale of the Scheme, the 2 km distance has been extended to 10 km to include consideration of several coastal European Sites that are hydrologically connected to the Scheme via watercourses crossed by the A1 (the River Coquet, the River Lyne and their tributaries for Part A and Mill Burn and Brunton Burn for Part B) or are designated for supporting avian qualifying features. There are no European Sites within 30 km of the Scheme for which bat species are a qualifying feature.

1.3.3. The assessment also considered the Affected Road Network (ARN) (refer to **Figure 5.1: Affected Road Network, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**) for Part A and **Volume 6** for Part B of the ES (**Application Document Reference: TR010041/APP/6.6**) for Part B) with regards to changes in air quality (**Ref. 8**). European Sites were also scoped in if located within 200 m of the ARN should the ARN extend beyond 10 km. Beyond the distance of 200 m from an affected road, the accepted scientific evidence suggests that there would not be a significant impact on sensitive habitats or species (**Ref. 9**). In accordance with paragraph 3.12 of Volume 11, Section 3, Part 1 to the DMRB guidance (**Ref. 10**), the following criteria were used to identify affected roads:

a. Road alignment will change by 5 m or more; or
b. Daily traffic flows will change by 1,000 annual average daily traffic (AADT); or
c. Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
d. Daily average speed will change by 10 km/hr or more; or
e. Peak hour speed will change by 20 km/hr or more.

1.3.4. Those sites scoped in for assessment for Part A comprise the following:

a. Northumbria Coast SPA
b. Northumbria Coast Ramsar
c. Northumberland Marine SPA
d. North Northumberland Dunes SAC
e. Coquet Island SPA

1.3.5. Due to its potential hydrological connection, located 2 km offshore from the mouth of the River Coquet, the Coquet Island SPA has also been included within the assessment for Part A.

1.3.6. The locations of these sites in relation to Part A are shown on **Figure 1** of **Appendix A** of this Report.

1.3.7. The sites scoped in for the assessment for Part B comprise the following:

a. Northumberland Marine SPA
b. Northumbria Coast SPA
c. Northumbria Coast Ramsar
d. Berwickshire & North Northumberland Coast SAC
e. North Northumberland Dunes SAC
f. Newham Fen SAC
g. River Tweed SAC

1.3.8. The locations of these sites in relation to the Scheme are shown on **Figure 2** in **Appendix D** of this Report.

1.4. REPORT CONTENT

1.4.1. Matrices in the form of DMRB checklists are presented in **Section 2** (Part A) and **Section 3** (Part B) of this Report for each of the European Sites. These contain the following information:

a. Description of Scheme
b. Description of avoidance and/or mitigation measures (if required)
c. Characteristics of European Site(s)
d. Assessment Criteria
e. Initial Assessment
f. Outcome of Screening Stage

1.4.2. **Appendix B** of this Report presents the Screening Matrices for Part A and **Appendix E** of this Report presents the Screening Matrices for Part B. The Screening Matrices are compliant with the Inspectorate Advice Note 10 (**Ref. 6**).

1.4.3. In relation to the requirement to consider the likely significant effects as a result of the Scheme on European Sites in combination with other plans or projects, it is noted that the assessments for both Part A and Part B (presented in **Section 2** and **Section 3** of this Report, respectively) acknowledge the in-combination effects of Part A and Part B (i.e. the Scheme), and therefore a 'cumulative' assessment has already been undertaken. Neither individual assessment identifies any likely significant effects alone, in combination with each other or in-combination with any other scheme.

1.5. LIMITATIONS

1.5.1. To enable the environmental impact assessment (EIA) and HRA to be undertaken, future traffic levels are predicted. This is usually undertaken for the opening year and the design year, which is conventionally taken as the fifteenth year after opening. For the Scheme, this was undertaken using economic projections and known developments based upon an opening year predicted to be in 2023 and a consequent design year of 2038. Since that time, the opening year has been put back to 2024. Updated Goods Vehicle Growth from DfT Road Traffic Forecasts (2018) have also become available. Therefore, the Applicant

has considered whether the predictions made using an opening year of 2023 are materially affected by this change.

1.5.2. A sensitivity analysis was carried out, in order to test whether these predicted traffic levels would materially affect assessments for the revised opening year and design year. The result of this sensitivity analysis was that there would be increases in vehicle movements (up to 4%) in the opening year (2024), and a decrease in predicted vehicle movements (up to 3%) in the design year (2039). Based on this level of change, the traffic data used to support the ES can be considered to be a reasonable representation of traffic in the new opening year of 2024. Therefore, there is not anticipated to be a material change in outcomes of those assessments that use traffic data, and the results and conclusions to date are considered to reasonably represent the impacts in 2024.

2. PART A - HRA SCREENING MATRICES

2.1. INTRODUCTION

2.1.1. These checklists are provided as information for individuals completing an AA and are not required as part of submissions to statutory environmental bodies or the competent authority.

2.1.2. One table (matrix) has been provided below for each of the following European Sites under consideration for Part A in a separate section as detailed below.

a. **Section 2.2** - Northumbria Coast SPA
b. **Section 2.3** - Northumbria Coast Ramsar
c. **Section 2.4** - Northumberland Marine SPA
d. **Section 2.5** - North Northumberland Dunes SAC
e. **Section 2.6** - Coquet Island SPA

2.2. NORTHUMBRIA COAST SPECIAL PROTECTION AREA

Table 2-1 - Northumbria Coast Special Protection Area – Part A

European Site under Consideration:	**Northumbria Coast SPA**
Description of Part A:	
Size and scale (road type and probable traffic volume)	Part A is located in Northumberland, extending for 12.6 km between Warreners House Interchange at Morpeth to the dual carriageway at Felton. Part A comprises the dualling of the existing A1 single carriageways, de-trunking of a section of the existing A1, four overbridges (three of which are new grade-separated junctions), an underbridge (beneath Part A's main alignment), a new subway (beneath Part A's main alignment), a new bridge over the River Coquet and new and extended culverts, together with new and improved ancillary features such as signage and road markings. Between the southern extent of Part A (where the A1 meets the A697 near Northgate Hospital and Warreners House in Morpeth) and Priest's Bridge, additional capacity would be provided by online widening of the carriageway to two carriageways in each direction. Between Priest's Bridge and Burgham Park, Part A would comprise a new offline section of dual carriageway to the west of the existing A1 passing west of Earsdon Moor and east of Causey Park. Between Burgham Park and Parkwood, widening would be online to two carriageways in each

European Site under Consideration:	Northumbria Coast SPA
	direction until the tie in point west of Felton where the existing A1 is dual carriageway. Part A would also include the closure of existing, and provision of new, private means of access and other access tracks. Furthermore, some side roads would be altered; Bywell Road would be realigned north of its existing junction with the A1; a new link road would be constructed to link the existing A1 to the proposed Fenrother junction; and a new link road would be constructed to the east of Part A to link the bypassed section of existing A1 with the proposed West Moor Junction and Felton Road. The total area of Part A is approximately 242 hectares (ha) in size, of which 167 ha would be permanently required (including land already owned by the Applicant). **Traffic Flows** The national speed limit would be retained along the main alignment of Part A. Traffic modelling[2] indicates the AADT along the existing A1 of Part A (north and southbound) without improvement as approximately 25,400 AADT. Upon completion of Part A, two-way traffic along the dualled A1 of Part A would be approximately 36,400 AADT and the de-trunked section of the existing A1 would be 3,000 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Northumbria Coast SPA (the European Site) is situated approximately 9.8 km to the east of Part A in a straight line. The European Site is located approximately 20 km downstream of Part A via the

[2] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumbria Coast SPA
	River Lyne and 22.5 km downstream via the River Coquet. The boundary of the Northumbria Coast Ramsar is shared with the Northumbria Coast SPA.
Land-take	There would be no land-take within the boundary of the European Site. Land take for Part A is primarily associated with the new offline section, which is located over 9.8 km from the European Site in a straight line. Therefore, no direct impacts upon the European Site are anticipated to result from the destruction of habitat by new works during either the construction or operational stages of Part A.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part A, shown in **Appendix A**)	The European Site is situated approximately 9.8 km to the east of Part A in a straight line, 20 km downstream via the River Lyne and 22.5 km downstream via the River Coquet. Taking into consideration the intervening distance, no impacts on the European Site are anticipated as a result of Part A during the construction or operational stages.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	Resource requirements for Part A are considered to have no potential to impact the European Site. No materials would be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated as a result of resource requirements during the construction or operational stages of Part A.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part A (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)). The ARN was reviewed to determine if any affected roads were located within 200 m of the European Site. Part A does not include alterations to the roads within 200 m of the European Site. There are no predicted increases in traffic levels on the roads within 200 m of the European Site beyond the relevant thresholds.

European Site under Consideration:	Northumbria Coast SPA
	There are no speed changes predicted on the roads within 200 m of the European Site in excess of the relevant thresholds. As the European Site is located over 200 m from the ARN, no impacts on the European Site are anticipated as a result of emissions. A traffic model was also developed to assess Part A in combination with Part B and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/ alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part A alone, in combination with Part B (i.e. the Scheme) and in combination with the further ten road schemes can be screened out. Part A crosses the River Lyne and River Coquet, the mouths of which are located within or in close proximity to the European Site; approximately 20 km and 22.5 km downstream, respectively. Part A would require works over both watercourses. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a result of pollution events or polluted surface water runoff during the construction or operational stages of Part A.

European Site under Consideration:	Northumbria Coast SPA
	In addition, the design of Part A incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation. The detention basins incorporate, as applicable, embedded mitigation (as part of Water Framework Directive (WFD) compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate Highways Agency Water Risk Assessment Tool (HAWRAT)[3] (**Chapter 10: Road Drainage and Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part A.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part A are primarily located along the new offline section and associated with structural foundations and landscape reprofiling. Excavation in relation to widening would be confined along either side of the existing A1 carriageway. It is predicted that the Part A would result in a surplus of 320,000 m^3 of excavated materials. Surplus material would be used within Part A to create proposed environmental bunds or alternatively be removed off-site. This may include exporting surplus materials for use on Part B and/or potential use on other schemes being developed by the Applicant in the North East.

[3] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Northumbria Coast SPA
	Drainage management including silt traps would be implemented during construction. Drainage basins have been being incorporated into the design of Part A. As detailed in **Chapter 11: Geology and Soils, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**), the Study Area for Part A incorporated the Order Limits of Part A plus a buffer of 250 m (**Figure 11.1: Study Area, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part A. As the European Site is outside this Study Area, no impacts are predicted. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part A. No excavations will be required at the operational stage of Part A.
Transportation requirements	Construction of Part A would require the transportation of earth and construction materials within the Order Limits of Part A, which are approximately 9.8 km from the European Site (in a straight line). Lane closures may be required during the construction works of Part A. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), the forecast increase in traffic volumes during construction would be between 336 and 401 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part A.

European Site under Consideration:	**Northumbria Coast SPA**
Duration of construction, operation, etc.	Advanced works are anticipated to start in 2020 and include the proposed Northern Gas Networks, Northern Power Grid and the main High-Pressure Gas Main diversions. The anticipated start date for Part A mainline construction is March 2022 and Part A is expected to be open for traffic in 2024. Taking into consideration the absence of any likely impacts on the European Site identified, the duration of construction and operation of Part A is therefore not a material factor with regard to the impact assessment.
Other.	Due to the distance between Part A and the European Site (9.8 km in a straight line); impacts to the European Site from noise, lighting and odour are not anticipated. A suite of ecological surveys and assessments have been undertaken on Part A to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline Construction Environmental Management Plan** (**Outline CEMP**) (**Application Document Reference: TR010041/APP/7.3**) has been produced. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered that in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB.

European Site under Consideration:	Northumbria Coast SPA
	– Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[4]:	
Name of European Site and its EU Code	The European Site under consideration is Northumbria Coast SPA (UK9006131).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located at NU 27281 04956, located approximately 9.8 km east directly from Part A. The European Site is 20 km downstream of Part A via the River Lyne and 22.5 km downstream via the River Coquet. The River Lyne currently flows through a culvert under Part A at approximately NZ 18569162. An additional culvert would be installed where the new offline section crosses the River Lyne (NZ 18479166),

[4] All information presented in this section was taken from documentation accessible from the Joint Nature Conservation Committee (JNCC) and Natural England websites in January 2020.

European Site under Consideration:	Northumbria Coast SPA
	approximately 100 m to the west of the existing crossing point. The River Coquet currently flows under the existing A1 and is crossed by a road bridge at approximately NZ 17438 99793. This crossing point would be supported by a new bridge adjacent to the existing, retained structure.
European Site size	1,097.45 hectares (ha)
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumbria Coast SPA Citation 2017: This site qualifies under Article 4 of the Birds Directive (2009/147/EC) for the following reasons: – The site regularly supports more than 1% of the Great British populations of two species listed in Annex I of the Birds Directive. – The site regularly supports more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex I of the Birds Directive. Qualifying species include; – Little tern *Sterna albifrons*, 1.7% of the breeding population in Great Britain (5 year peak mean 1993 - 1997). – Arctic tern *Sterna paradisaea*, 2.92% of the British population (5 year peak mean 2010 - 2014). – Purple sandpiper *Calidris maritima*, 763 individuals representing at least 1.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1992/93 – 1996/97). – Ruddy turnstone *Arenaria interpres*, 2.6% of the wintering Western Palearctic - wintering population (5 year peak mean 1992/3 - 1996/7).
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumbria Coast Natura 2000 – Standard Data Form (17 September 2018): The following ‘threats and pressures’ to the Northumbria Coast designated site are identified and ranked as ‘high’:

European Site under Consideration:	Northumbria Coast SPA
	– Outdoor sports and leisure activities, recreational activities (G01). – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Other human intrusions and disturbances (G05). The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'medium': – Interspecific faunal relation (K03). Natural England Site Improvement Plan (SIP) for Northumberland Coastal (SIP 157), Version 1.0, 29 April 2015: The Northumberland Coastal SIP covers five Natura 2000 sites including the Northumbria Coast SPA. The plan identifies thirteen priority issues for these sites including public access, water pollution, invasive species, direct impact from third party, transportation and service corridors and air pollution. Runoff from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	European Site Conservation Objectives for Northumbria Coast Special Protection Area Site Code: UK9006131. Publication date: 21 February 2019 (Version 3). "*Regarding the SPA and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' including the 'Additional Qualifying Features' listed below), and subject to natural change:* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:* – *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.*

European Site under Consideration:	**Northumbria Coast SPA**
	– *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site".* Qualifying Features: – A148 Purple sandpiper (Non-breeding). – A169 Ruddy turnstone (Non-breeding). – A195 Little tern (Breeding). – A194 Arctic tern (Breeding).
Assessment Criteria:	
The European Site is situated approximately 9.8 km east of Part A, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part A. As detailed in the 'Description of Part A – Emissions' section above, traffic modelling included an assessment of Part A both alone, in combination with Part B (i.e. the Scheme) and in combination with ten other road schemes. The modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the Initial Assessment below. The European Site is 20 km downstream from Part A via the River Lyne and 22.5 km downstream via the River Coquet. Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part A is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part A does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works.

European Site under Consideration:	Northumbria Coast SPA
Disturbance to key species	No Impact. The European Site is situated 9.8 km from Part A. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part A' section above). The breeding bird surveys completed between March and July 2016 (**Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and the wintering bird surveys completed between October 2016 and February 2017 (**Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and in February 2020 (**Appendix 9.26: Wintering Bird Verification Survey Report, Volume 7** of the ES) did not record any of the selection criteria species of the European Site within the surveyed area (Order Limits of Part A plus 500 m[5]). The absence of qualifying species recorded within the surveyed area is sufficient to screen out impacts of disturbance to qualifying species.
Habitat or species fragmentation	No Impact. The European Site is situated 9.8 km from Part A. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. None of the qualifying species of the European Site were recorded within the surveyed area. As such, there would be no reduction in species density (qualifying species) as a result of Part A.

[5] Refined to the Order Limits of Part A plus 100 m for the 2020 verification survey.

European Site under Consideration:	Northumbria Coast SPA
	The European Site is linked to Part A hydrologically via the River Lyne and River Coquet. The inclusion within the design of Part A of an appropriate drainage strategy (in terms of best practice and design) proposed for Part A would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (as detailed in the WFD assessment) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is highly unlikely that Part A would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part A would not incur any hydrological impacts to the European Sites in isolation, it would not contribute to any in combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part A would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part A. As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Climate change	No associated impact because of Part A. The integrity of the European Site may be impacted by changes in sea level because of climate change. However, upon completion, Part A would result in improved efficiency in traffic movements (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)), reducing collective emissions in the long-term that would otherwise contribute to climate change. The

European Site under Consideration:	**Northumbria Coast SPA**
	impacts of climate change are therefore unlikely to be compounded because of Part A. There is also anticipated to be a net reduction in per vehicle emissions over coming years (**Ref. 11**), as evidenced by latest vehicle sales statistics for the UK. Part A would not result in significant increases to vehicular traffic and associated emissions along roads within 200 m of the European Site. Part A would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part A is situated a significant distance away from the European Site (9.8 km in a straight line, 20 km downstream from Part A via the River Lyne and 22.5 km downstream via the River Coquet).
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.

European Site under Consideration:	Northumbria Coast SPA
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumbria Coast SPA are anticipated because of Part A, either alone or in combination.	
Outcome of screening stage	Not Likely to be Significant Effects
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attached relevant correspondence)	Natural England has confirmed agreement with the conclusions set out in this Report for Part A. Agreement is evidenced in **Appendix C**.

2.3. NORTHUMBRIA COAST RAMSAR

Table 2-2 - Northumbria Coast Ramsar – Part A

European Site under Consideration:	Northumbria Coast Ramsar
Description of Part A:	
Size and scale (road type and probable traffic volume)	Part A is located in Northumberland, extending for 12.6 km between Warreners House Interchange at Morpeth to the dual carriageway at Felton. Part A comprises the dualling of the existing A1 single carriageways, de-trunking of a section of the existing A1, four overbridges (three of which are new grade-separated junctions), an underbridge (beneath the main alignment of Part A), a new subway (beneath the main alignment of Part A), a new bridge over the River Coquet and new and extended culverts, together with new and improved ancillary features such as signage and road markings. Between the southern extent of Part A (where the A1 meets the A697 near Northgate Hospital and Warreners House in Morpeth) and Priest's Bridge, additional capacity would be provided by online widening of the carriageway to two carriageways in each direction. Between Priest's Bridge and Burgham Park, Part A would comprise a new offline section of

European Site under Consideration:	Northumbria Coast Ramsar
	dual carriageway to the west of the existing A1 passing west of Earsdon Moor and east of Causey Park. Between Burgham Park and Parkwood, widening would be online to two carriageways in each direction until the tie in point west of Felton where the existing A1 is dual carriageway. Part A would also include the closure of existing, and provision of new, private means of access and other access tracks. Furthermore, some side roads would be altered; Bywell Road would be realigned north of its existing junction with the A1; a new link road would be constructed to link the existing A1 to the proposed Fenrother junction; and a new link road would be constructed to the east of Part A to link the bypassed section of existing A1 with the proposed West Moor Junction and Felton Road. The total area of Part A is approximately 242 hectares (ha) in size, of which 167 ha would be permanently required (including land already owned by the Applicant). **Traffic Flows** The national speed limit would be retained along the main alignment of Part A. Traffic modelling[6] indicates the AADT along the existing A1 of Part A (north and southbound) without improvement as approximately 25,400 AADT. Upon completion of Part A, two-way traffic along the dualled A1 of Part A would be approximately 36,400 AADT and the de-trunked section of the existing A1 would be 3,000 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below).

[6] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumbria Coast Ramsar
	European Site The Northumbria Coast Ramsar (the European Site) is situated approximately 9.8 km to the east of Part A in a straight line. The European Site is located approximately 20 km downstream Part A via the River Lyne and 22.5 km downstream via the River Coquet. The boundary of the Northumbria Coast Ramsar is shared with the Northumbria Coast SPA.
Land-take	There would be no land-take within the boundary of the European Site. Land take for Part A is primarily associated with the new offline section, which is located over 9.8 km from the European Site in a straight line. Therefore, no direct impacts upon the European Site are anticipated to result from the destruction of habitat by new works during either the construction or operational stages of Part A.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part A, shown in **Appendix A**)	The European Site is situated approximately 9.8 km to the east of Part A in a straight line, 20 km downstream via the River Lyne and 22.5 km downstream via the River Coquet. Taking into consideration the intervening distance, no impacts on the European Site are anticipated as a result of Part A during the construction or operational stages.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	Resource requirements for Part A are considered to have no potential to impact the European Site. No materials would be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated as a result of resource requirements during the construction or operational stages of Part A.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part A (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)). The ARN was reviewed to determine if any affected roads were located within 200 m of the European Site.

European Site under Consideration:	Northumbria Coast Ramsar
	Part A does not include alterations to the roads within 200 m of the European Site. There are no predicted increases in traffic levels on the roads within 200 m of the European Site beyond the relevant thresholds. There are no speed changes predicted on the roads within 200 m of the European Site in excess of the relevant thresholds. As the European Site is located over 200 m from the ARN, no impacts on the European Site are anticipated as a result of emissions. A traffic model was also developed to assess Part A in combination with Part B and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/ alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part A alone, in combination with Part B (i.e. the Scheme) and in combination with the further ten road schemes can be screened out. Part A crosses the River Lyne and River Coquet, the mouths of which are located within or in close proximity to the European Site; approximately 20 km and 22.5 km downstream from Part A, respectively. Part A would require works over both watercourses. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a

European Site under Consideration:	Northumbria Coast Ramsar
	result of pollution events or polluted surface water runoff during the construction or operational stages of Part A. In addition, the design of Part A incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part A. The detention basins incorporate, as applicable, embedded mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT (**Chapter 10: Road Drainage and Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part A.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part A are primarily located along the new offline section and associated with structural foundations and landscape reprofiling. Excavation in relation to widening would be confined along either side of the existing A1 carriageway. It is predicted that Part A would result in a surplus of 320,000 m^3 of excavated materials. Surplus material would be used within the Order Limits of Part A to create proposed environmental bunds or alternatively be removed off-site. This may include exporting surplus materials for use on Part B and/or use on other schemes being developed by the Applicant in the North East. Drainage management including silt traps would be implemented during construction. Drainage basins have been being incorporated into the design of Part A. As detailed in **Chapter 11: Geology and Soils, Volume 2 of the ES** (**Application Document Reference: TR010041/APP/6.2**), the Study Area

European Site under Consideration:	Northumbria Coast Ramsar
	incorporated the Order Limits of Part A plus a buffer of 250 m (**Figure 11.1: Study Area, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). It was considered that this is the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part A. As the European Site is outside this Study Area, no impacts are predicted. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part A. No excavations will be required at the operational stage of Part A.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part A, which are approximately 9.8 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), the forecast increase in traffic volumes during construction would be between 336 and 401 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages.
Duration of construction, operation, etc.	Advanced works are anticipated to start in 2020 and include the proposed Northern Gas Networks, Northern Power Grid and the main High-Pressure Gas Main diversions. The anticipated start date for Part A's mainline construction is March 2022 and Part A is expected to be open for traffic in 2024.

European Site under Consideration:	Northumbria Coast Ramsar
	Taking into consideration the absence of any likely impacts on the European Site identified, the duration of construction and operation of Part A is therefore not a material factor with regard to the impact assessment.
Other.	Due to the distance between Part A and the European Site (9.8 km in a straight line); impacts to the European Site from noise, lighting and odour are not anticipated. A suite of ecological surveys and assessments have been undertaken on Part A to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered that in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.

European Site under Consideration:	**Northumbria Coast Ramsar**
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[7]:	
Name of European Site and its EU Code	The European Site under consideration is the Northumbria Coast Ramsar (UK11049).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located at NU 27281 04956, located approximately 9.8 km east directly from Part A. The European Site is 20 km downstream of Part A via the River Lyne and 22.5 km downstream via the River Coquet. The River Lyne currently flows through a culvert under Part A at approximately NZ18569162. An additional culvert would be installed where the new offline section crosses the River Lyne (NZ18479166), approximately 100 m to the west of the existing crossing point. The River Coquet currently flows under the existing A1 and is crossed by a road bridge at approximately NZ 17438 99793. This crossing point would be supported by a new bridge adjacent to the existing, retained structure.

[7] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in January 2020.

European Site under Consideration:	Northumbria Coast Ramsar
European Site size	1,107.98 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumbria Coast Information Sheet on Ramsar Wetlands (RIS), Version 3.0, 5 May 2006: Ramsar Criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: – Little tern, W Europe 43 apparently occupied nests, representing an average of 2.2% of the GB population (Seabird 2000 Census). – Species with peak counts in winter: – Purple sandpiper, E Atlantic –wintering 291 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3). – Ruddy turnstone, NE Canada, Greenland/W Europe & NW Africa 978 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3).
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumbria Coast Natura 2000 – Standard Data Form, 17 September 2018: The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'high': – Outdoor sports and leisure activities, recreational activities (G01). – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Other human intrusions and disturbances (G05). The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'medium': – Interspecific faunal relation (K03).

European Site under Consideration:	Northumbria Coast Ramsar
	Natural England Site Improvement Plan (SIP) for Northumberland Coastal (SIP 157), Version 1.0, 29 April 2015: The Northumberland Coastal SIP covers five Natura 2000 sites including the Northumbria Coast SPA. As the Ramsar site is designated due to presence of the same species as the SPA it is considered that the threats and pressures applicable to the SPA are also applicable to the Ramsar site. The plan identifies thirteen priority issues for these sites including public access, water pollution, invasive species, direct impact from third party, transportation and service corridors and air pollution. Runoff from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	There are no conservation objectives identified for the Northumbria Coast Ramsar. However, as the Northumbria Coast SPA covers the same geographical area, it is considered that the objectives for the SPA are also applicable to the Ramsar site. European Site Conservation Objectives for Northumbria Coast Special Protection Area Site Code: UK9006131. Publication date: 21 February 2019 (Version 3). "*Regarding the SPA and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' including the 'Additional Qualifying Features' listed below), and subject to natural change:* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;* – *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.*

European Site under Consideration:	Northumbria Coast Ramsar
	– *The distribution of the qualifying features within the site".* Qualifying Features: – A148 Purple sandpiper (Non-breeding). – A169 Ruddy turnstone (Non-breeding). – A195 Little tern (Breeding). – A194 Arctic tern (Breeding).
Assessment Criteria:	
The European Site is situated approximately 9.8 km east of Part A, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part A. As detailed in the 'Description of Part A – Emissions' section above, traffic modelling included an assessment of Part A both alone, in combination with Part B (i.e. the Scheme) and in combination with ten other road schemes. The modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the Initial Assessment below. The European Site is 20 km downstream from Part A via the River Lyne and 22.5 km downstream via the River Coquet. Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part A is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part A does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works.
Disturbance to key species	No Impact. The European Site is situated 9.8 km from Part A. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part A' section above).

European Site under Consideration:	Northumbria Coast Ramsar
	The breeding bird surveys completed between March and July 2016 (**Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and the wintering bird surveys completed between October 2016 and February 2017 (**Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and in February 2020 (**Appendix 9.26: Wintering Bird Verification Survey Report, Volume 7** of the ES) did not record any of the selection criteria species of the European Site within the surveyed area (Order Limits of Part A plus 500 m[8]). The absence of qualifying species recorded within the surveyed area is sufficient to screen out impacts of disturbance to qualifying species.
Habitat or species fragmentation	No Impact. The European Site is situated 9.8 km from Part A. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. None of the qualifying species of the European Site were recorded within the surveyed area. As such, there would be no reduction in species density (qualifying species) as a result of Part A. The European Site is linked to Part A hydrologically via the River Lyne and River Coquet. The inclusion within the design for Part A of an appropriate drainage strategy (in terms of best practice and design) proposed for Part A would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (as detailed in the WFD assessment) as

[8] Refined to the Order Limits of Part A plus 100 m for the 2020 verification survey.

European Site under Consideration:	Northumbria Coast Ramsar
	part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is highly unlikely that Part A would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part A would not incur any hydrological impacts to the European Sites in isolation, it would not contribute to any in combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part A would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part A. As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Climate change	No associated impact because of Part A. The integrity of the European Site may be impacted by changes in sea level because of climate change. However, upon completion, Part A would result in improved efficiency in traffic movements (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)), reducing collective emissions in the long-term that would otherwise contribute to climate change. The impacts of climate change are therefore unlikely to be compounded because of Part A. There is also anticipated to be a net reduction in per vehicle emissions over coming years (**Ref. 11**), as evidenced by latest vehicle sales statistics for the UK. Part A would not result in significant increases to vehicular traffic and associated emissions along roads within 200 m of the European Site.

European Site under Consideration:	Northumbria Coast Ramsar
	Part A would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part A is situated a significant distance away from the European Site (9.8 km in a straight line, 20 km downstream from Part A via the River Lyne and 22.5 km downstream via the River Coquet).
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumbria Coast Ramsar are anticipated because of Part A, either alone or in combination.	

European Site under Consideration:	Northumbria Coast Ramsar
Outcome of screening stage	Not Likely to be Significant Effects
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attached relevant correspondence)	Natural England has confirmed agreement with the conclusions set out in this Report for Part A. Agreement is evidenced in **Appendix C**.

2.4. NORTHUMBERLAND MARINE SPECIAL PROTECTION AREA

Table 2-3 - Northumberland Marine Special Protection Area – Part A

European Site under Consideration:	Northumberland Marine SPA
Description of Part A:	
Size and scale (road type and probable traffic volume)	Part A is located in Northumberland, extending for 12.6 km between Warreners House Interchange at Morpeth to the dual carriageway at Felton. Part A comprises the dualling of the existing A1 single carriageways, de-trunking of a section of the existing A1, four overbridges (three of which are new grade-separated junctions), an underbridge (beneath the Part A's main alignment), a new subway (beneath the Part A's main alignment), a new bridge over the River Coquet and new and extended culverts, together with new and improved ancillary features such as signage and road markings. Between the southern extent of Part A (where the A1 meets the A697 near Northgate Hospital and Warreners House in Morpeth) and Priest's Bridge, additional capacity would be provided by online widening of the carriageway to two carriageways in each direction. Between Priest's Bridge and Burgham Park, Part A would comprise a new offline section of dual carriageway to the west of the existing A1 passing west of Earsdon Moor and east of Causey Park. Between Burgham Park and Parkwood, widening would be online to two carriageways in each

European Site under Consideration:	Northumberland Marine SPA
	direction until the tie in point west of Felton where the existing A1 is dual carriageway. Part A would also include the closure of existing, and provision of new, private means of access and other access tracks. Furthermore, some side roads would be altered; Bywell Road would be realigned north of its existing junction with the A1; a new link road would be constructed to link the existing A1 to the proposed Fenrother junction; and a new link road would be constructed to the east of Part A to link the bypassed section of existing A1 with the proposed West Moor Junction and Felton Road. The total area of Part A is approximately 242 hectares (ha) in size, of which 167 ha would be permanently required (including land already owned by the Applicant). **Traffic Flows** The national speed limit would be retained along the main alignment of Part A. Traffic modelling[9] indicates the AADT along the existing A1 of Part A (north and southbound) without improvement as approximately 25,400 AADT. Upon completion of Part A, two-way traffic along the dualled A1 would be approximately 36,400 AADT and the de-trunked section of the existing A1 would be 3,000 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below).

[9] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumberland Marine SPA
	European Site The Northumberland Marine SPA (the European Site) is situated approximately 8.6 km to the east of Part A in a straight line. The European Site is located approximately 19 km downstream of Part A via the River Lyne and 18 km downstream via the River Coquet.
Land-take	There would be no land-take within the boundary of the European Site. Land take for Part A is primarily associated with the new offline section, which is located approximately 8.6 km to from the European Site in a straight line. Therefore, no direct impacts upon the European Site are anticipated to result from the destruction of habitat by new works during either the construction or operational stages of Part A.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part A, shown in **Appendix A**)	The European Site is situated approximately 8.6 km to the east of Part A in a straight line, 19 km downstream via the River Lyne and 18 km downstream via the River Coquet. Taking into consideration the intervening distance, no impacts on the European Site are anticipated as a result of Part A during the construction or operational stages.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	Resource requirements for Part A are considered to have no potential to impact the European Site. No materials would be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated as a result of resource requirements during the construction or operational stages of Part A.
Emissions (e.g. polluted surface water runoff – both	Traffic modelling has been completed to establish the ARN as a result of Part A (**Chapter 5: Air Quality,**

European Site under Consideration:	Northumberland Marine SPA
soluble and insoluble pollutants, atmospheric pollution)	**Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)). The ARN was reviewed to determine if any affected roads were located within 200 m of the European Site. Part A does not include alterations to the roads within 200 m of the European Site. There are no predicted increases in traffic levels on the roads within 200 m of the European Site beyond the relevant thresholds. There are no speed changes predicted on the roads within 200 m of the European Site in excess of the relevant thresholds. As the European Site is located over 200 m from the ARN, no impacts on the European Site are anticipated as a result of emissions. A traffic model was also developed to assess Part A in combination with Part B and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/ alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part A alone, in combination with Part B (i.e. the Scheme) and in combination with the further ten schemes can be screened out.

European Site under Consideration:	Northumberland Marine SPA
	Part A crosses the River Lyne and River Coquet, the mouths of which are located within or in close proximity to the European Site; approximately 19 km and 18 km downstream from Part A, respectively. Part A would require works over both watercourses. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a result of pollution events or polluted surface water runoff during the construction or operational stages. In addition, the design of Part A incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part A. The detention basins incorporate, as applicable, embedded mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT (**Chapter 10: Road Drainage and Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part A.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part A are primarily located along the new offline section and associated with structural foundations and landscape reprofiling. Excavation in relation to widening would be confined along either side of the existing A1 carriageway. It is predicted that Part A would result in a surplus of

European Site under Consideration:	Northumberland Marine SPA
	320,000 m^3 of excavated materials. Surplus material would be used within the Order Limits of Part A to create proposed environmental bunds or alternatively be removed off-site. This may include exporting surplus materials for use on Part B and/or use on other schemes being developed by the Applicant in the North East. Drainage management including silt traps would be implemented during construction. Drainage basins have been being incorporated into the design of Part A. As detailed in **Chapter 11: Geology and Soils, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**), the Study Area incorporated the Order Limits of Part A plus a buffer of 250 m (**Figure 11.1: Study Area, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). It was considered that this is the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part A. As the European Site is outside this Study Area, no impacts are predicted. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part A. No excavations will be required at the operational stage of Part A.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part A, which are approximately 8.6 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists.

European Site under Consideration:	Northumberland Marine SPA
	Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), the forecast increase in traffic volumes during construction would be between 336 and 401 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part A.
Duration of construction, operation, etc.	Advanced works are anticipated to start in 2020 and include the proposed Northern Gas Networks, Northern Power Grid and the main High-Pressure Gas Main diversions. The anticipated start date for the Part A mainline construction is March 2022 and Part A is expected to be open for traffic in 2024. Taking into consideration the absence of any likely impacts on the European Site identified, the duration of construction and operation of Part A is therefore not a material factor with regard to the impact assessment.
Other.	Due to the distance between Part A and the European Site (8.6 km in a straight line); impacts to the European Site from noise, lighting and odour are not anticipated. A suite of ecological surveys and assessments have been undertaken on Part A to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced. A full CEMP would be produced by the main contractor

European Site under Consideration:	Northumberland Marine SPA
	detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered that in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A

European Site under Consideration:	Northumberland Marine SPA
Characteristics of European Site[10]:	
Name of European Site and its EU Code	The European Site under consideration is the Northumberland Marine SPA (UK9020325).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located at NZ 27870 96748, located approximately 8.6 km east directly from Part A. The European Site is 19 km downstream of Part A via the River Lyne and 18 km downstream via the River Coquet. The River Lyne currently flows through a culvert under Part A at approximately NZ18569162. An additional culvert would be installed where the new offline section crosses the River Lyne (NZ18479166), approximately 100 m to the west of the existing crossing point. The River Coquet currently flows under the existing A1 and is crossed by a road bridge at approximately NZ 17438 99793. This crossing point would be supported by a new bridge adjacent to the existing, retained structure.
European Site size	88,498.35 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumberland Marine SPA Citation: The site qualifies under Article 4 of the Birds Directive (2009/147/EC) for the following reasons: – The site regularly supports more than 1% of the Great Britain breeding populations of five species listed in Annex 1 of the EC Birds

[10] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in January 2020.

European Site under Consideration:	Northumberland Marine SPA
	Directive; sandwich tern *Sterna sandvicensis*, common tern *Sterna hirundo*, arctic tern, Roseate tern *Sterna dougallii* and little tern. – The site regularly supports more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex 1 of the EC Birds Directive; Atlantic puffin *Fratercula arctica* and common guillemot *Urla aalge*. The site qualifies under Article 4.2 of the Directive (2009/147/EC) as it used regularly by over 20,000 seabirds in any season. During the breeding season (2020 to 2014), the area supports 214,669 individual seabirds including: – Great cormorant *Phalacrocorax carbo*, 230 breeding adults, representing 1.37% of the breeding UK population. – European shag *Phalacrocorax aristotelis*, 1,677 breeding adults, representing 3.11% of the breeding UK population. – Black-headed gull *Larus ridibundus*, 8,745 breeding adults, representing 3.36% of the breeding UK population. – Black-legged kittiwake *Rissa tridactyla*, 8,667 breeding adults, representing 1.17% the UK population.
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumberland Marine SPA – Standard Data Form, 30 June 2017: The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'medium': – Outdoor sports and leisure activities, recreational activities (G01). The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'low': – Marine and Freshwater Aquaculture (F01). Runoff from roads or pollution from upstream construction activities are not identified as a specific threat.

European Site under Consideration:	**Northumberland Marine SPA**
European Site conservation objectives – where these are readily available	European Site Conservation Objectives for Northumberland Marine Special Protection Area Site Code: UK9020325. Publication date 21 February 2019 (Version 3). "*Regarding this SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change.* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;* – *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site".* Qualifying Features: – A191 Sandwich tern (Breeding) – A192 Roseate tern (Breeding) – A193 Common tern (Breeding) – A194 Arctic tern (Breeding) – A195 Little tern (Breeding) – A199 Common guillemot (Breeding) – A204 Atlantic puffin (Breeding) – Seabird assemblage
Assessment Criteria:	
The European Site is situated approximately 8.6 km east of Part A, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part A. As detailed in the 'Description of Part A – Emissions' section above, traffic modelling included an assessment of Part A both alone, in combination with Part B (i.e. the Scheme) and in combination with ten other road schemes. The modelling concluded no	

European Site under Consideration:	Northumberland Marine SPA

significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the Initial Assessment below.

The European Site is 19 km downstream from Part A via the River Lyne and 18 km downstream via the River Coquet. Given the intervening distance, no impacts on the European Site are anticipated as a result of changes in water quality or potential pollution/contamination incidents.

As Part A is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.

Initial Assessment:	
Reduction of habitat area	No Impact. Part A does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works.
Disturbance to key species	No Impact. The European Site is situated 8.6 km from Part A. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part A' section above). The breeding bird surveys completed between March and July 2016 (**Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) did not record any of the selection criteria species of the European designations within the surveyed area (Order Limits of Part A plus 500 m), except for black-headed gull. This species was recorded with a maximum count of 194 birds during any one survey and a maximum flock size of 35. Confirmation of breeding was not recorded and the numbers are not

European Site under Consideration:	Northumberland Marine SPA
	considered significant[11], with the peak count representing 2% of the population breeding within the Northumberland Marine SPA[12] (SPA Citation, Northumberland Marine SPA) and approximately 0.14% of the UK breeding population of 138,000 (**Ref. 12**). The majority of birds recorded were also flying over the survey area when they were observed, rather than using terrestrial habitats within the survey area. With the exception of black-headed gull, the wintering bird surveys completed between October 2016 and February 2017, and the verification survey undertaken in February 2020, did not record any of the selection criteria species of the European designations using the surveyed area (**Appendix 9.14: Wintering Bird Survey Report** and **Appendix 9.26: Wintering Bird Verification Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). Single great cormorants (a qualifying species) were observed flying over the survey area during each of the first four visits in 2016/17. However, the species was not observed using terrestrial habitats within the survey area. The species was also not recorded during the 2020 verification survey. As such, great cormorant is not considered further. Where flocks of black-headed gulls were observed using terrestrial habitats within the survey area in 2016/17 (arable and improved grassland fields), these were generally outside the Order Limits of Part A and in areas of retained habitat. The 2020 verification survey recorded a single black-headed gull only, foraging outside the Order Limits of Part A. Black-headed gull numbers cited within the Northumberland Marine SPA are cited for their breeding, not wintering, populations. The majority of birds were recorded flying over. A peak count of 305 birds (which includes those flying over) were recorded

[11] Significance was determined by professional judgement and agreement with Natural England during consultation and their review of the Draft HRA Screening Report.

[12] Northumberland Marine SPA population (8745 breeding adults) used as a comparison given this encompasses the Coquet Island (SPA).

European Site under Consideration:	Northumberland Marine SPA
	during the wintering bird surveys (October 2016), representing an estimated 0.9% of the Northumbria population (**Ref. 13**) equivalent to 0.01% of the UK wintering population of 2,155,000 (**Ref. 14**). The absence of qualifying species or in the case of black-headed gulls the low numbers recorded within the surveyed area and the low level of usage of habitats affected by Part A is considered sufficient to screen out impacts of disturbance to qualifying species.
Habitat or species fragmentation	No Impact. The European Site is situated 8.6 km from Part A. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. There would be no reduction in species density as a result of Part A. With the exception of black- headed gull, none of the qualifying species supported by the European Site were recorded within the survey area. As detailed in the 'Disturbance to Key Species' section above, the numbers of black-headed gull recorded within the surveyed area were not considered significant. In addition, Part A would not result in the loss of any wetland habitat. The loss of arable farmland is not considered significant due to the areas of arable habitat in the wider landscape, including between Part A and the SPA. Given the extensive alternative habitat resources available, a reduction in species density as a result of Part A is not anticipated. The European Site is linked to Part A hydrologically via the River Lyne and River Coquet. The inclusion within the design of Part A of an appropriate drainage strategy (in terms of best practice and design) proposed for Part A would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (as detailed in the WFD assessment) as

European Site under Consideration:	Northumberland Marine SPA
	part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is highly unlikely that Part A would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part A would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part A. As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Climate change	No associated impact because of Part A. The integrity of the European Site may be impacted by changes in sea level because of climate change. However, upon completion, Part A would result in improved efficiency in traffic movements (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)), reducing collective emissions in the long-term that would otherwise contribute to climate change. The impacts of climate change are therefore unlikely to be compounded because of Part A. There is also anticipated to be a net reduction in per vehicle

European Site under Consideration:	Northumberland Marine SPA
	emissions over coming years (**Ref. 11**), as evidenced by latest vehicle sales statistics for the UK. Part A would not result in significant increases to vehicular traffic and associated emissions along roads within 200 m of the European Site. Part A would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part A is situated a significant distance away from the European Site (8.6 km in a straight line, 19 km downstream via the River Lyne and 18 km downstream via the River Coquet).
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.

European Site under Consideration:	Northumberland Marine SPA
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumberland Marine SPA are anticipated because of Part A, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attached relevant correspondence)	Natural England has confirmed agreement with the conclusions set out in this Report for Part A. Agreement is evidenced in **Appendix C**.

2.5. NORTH NORTHUMBERLAND DUNES SPECIAL AREA OF CONSERVATION

Table 2-4 – North Northumberland Dunes Special Area of Conservation – Part A

European Site under Consideration:	North Northumberland Dunes SAC
Description of Part A:	
Size and scale (road type and probable traffic volume)	Part A is located in Northumberland, extending for 12.6 km between Warreners House Interchange at Morpeth to the dual carriageway at Felton. Part A comprises the dualling of the existing A1 single carriageways, de-trunking of a section of the existing A1, four overbridges (three of which are new grade-separated junctions), an underbridge (beneath Part A's main alignment), a new subway (beneath Part A's main alignment), a new bridge over the River Coquet and new and extended culverts, together with new and

European Site under Consideration:	North Northumberland Dunes SAC
	improved ancillary features such as signage and road markings. Between the southern extent of Part A (where the A1 meets the A697 near Northgate Hospital and Warreners House in Morpeth) and Priest's Bridge, additional capacity would be provided by online widening of the carriageway to two carriageways in each direction. Between Priest's Bridge and Burgham Park Part A would comprise a new offline section of dual carriageway to the west of the existing A1 passing west of Earsdon Moor and east of Causey Park. Between Burgham Park and Parkwood, widening would be online to two carriageways in each direction until the tie in point west of Felton where the existing A1 is dual carriageway. Part A would also include the closure of existing, and provision of new, private means of access and other access tracks. Furthermore, some side roads would be altered; Bywell Road would be realigned north of its existing junction with the A1; a new link road would be constructed to link the existing A1 to the proposed Fenrother junction; and a new link road would be constructed to the east of Part A to link the bypassed section of existing A1 with the proposed West Moor Junction and Felton Road. The total area of Part A is approximately 242 hectares (ha) in size, of which 167 ha would be permanently required (including land already owned by the Applicant). **Traffic Flows** The national speed limit would be retained along main alignment of Part A.

European Site under Consideration:	North Northumberland Dunes SAC
	Traffic modelling[13] indicates the AADT along the existing A1 of Part A (north and southbound) without improvement as approximately 25,400 AADT. Upon completion of Part A, two-way traffic along the dualled A1 of Part A would be approximately 36,400 AADT and the de-trunked section of the existing A1 would be 3,000 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The North Northumberland Dunes SAC (the European Site) is situated approximately 9.5 km to the east of Part A in a straight line. The European Site is located approximately 21.5 km downstream of Part A via the River Coquet. The European Site is not within a zone of influence of the mouth of the River Lyne. The River Lyne is therefore not considered further with respect to the assessment of impacts to the European Site.
Land-take	There would be no land-take within the boundary of the European Site. Land take for Part A is primarily associated with the new offline section, which is located approximately 9.5 km to from the European Site in a straight line. Therefore, no direct impacts upon the European Site are anticipated to result from the destruction of habitat by new works during either the construction or operational stages of Part A.

[13] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	North Northumberland Dunes SAC
Distance from the European Site or key features of the site (from edge of the Order Limits of Part A, shown in **Appendix A**)	The European Site is situated approximately 9.5 km to the east of Part A in a straight line and 21.5 km downstream via the River Coquet. Taking into consideration the intervening distance, no impacts on the European Site are anticipated as a result of Part A during the construction or operational stages.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	Resource requirements for Part A are considered to have no potential to impact the European Site. No materials would be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated as a result of resource requirements during the construction or operational stages of Part A.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part A (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)). The ARN was reviewed to determine if any affected roads were located within 200 m of the European Site. Part A does not include alterations to the roads within 200 m of the European Site. There are no predicted increases in traffic levels on the roads within 200 m of the European Site beyond the relevant thresholds. There are no speed changes predicted on the roads within 200 m of the European Site in excess of the relevant thresholds. As the European Site is located over 200 m from the ARN, no impacts on the European Site are anticipated as a result of emissions. A traffic model was also developed to assess Part A in combination with Part B and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House

European Site under Consideration:	North Northumberland Dunes SAC
	– A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/ alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part A alone, in combination with Part B (i.e. the Scheme) and in combination with the further ten road schemes can be screened out. Part A crosses the River Coquet, the mouth of which is located adjacent to the European Site; approximately 21.5 km downstream. Part A would require works over and in the River Coquet. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a result of pollution events or polluted surface water runoff during the construction or operational stages. In addition, the design of Part A incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part A. The detention basins incorporate, as applicable, embedded mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls

European Site under Consideration:	North Northumberland Dunes SAC
	were subject to appropriate HAWRAT (**Chapter 10: Road Drainage and Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part A.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part A are primarily located along the new offline section and associated with structural foundations and landscape reprofiling. Excavation in relation to widening would be confined along either side of the existing A1 carriageway. It is predicted that Part A would result in a surplus of 320,000 m^3 of excavated materials. Surplus material would be used within the Order Limits of Part A to create proposed environmental bunds or alternatively be removed off-site. This may include exporting surplus materials for use on Part B, and/or use on other schemes being developed by the Applicant in the North East. Drainage management including silt traps would be implemented during construction. Drainage basins have been being incorporated into the design of Part A. As detailed in **Chapter 11: Geology and Soils, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**), the Study Area incorporated the Order Limits of Part A plus a buffer of 250 m (**Figure 11.1: Study Area, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). It was considered that this is the only area that would be impacted in terms of geology and soils based on the surrounding sensitive

European Site under Consideration:	North Northumberland Dunes SAC
	environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part A. As the European Site is outside this Study Area, no impacts are predicted. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage. No excavations will be required at the operational stage.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part A, which are approximately 9.5 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), the forecast increase in traffic volumes during construction would be between 336 and 401 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part A.
Duration of construction, operation, etc.	Advanced works are anticipated to start in 2020 and include the proposed Northern Gas Networks, Northern Power Grid and the main High-Pressure Gas Main diversions. The anticipated start date for the Part A mainline construction is March 2022 and Part A is expected to be open for traffic in 2024.

European Site under Consideration:	North Northumberland Dunes SAC
	Taking into consideration the absence of any likely impacts on the European Site identified, the duration of construction and operation of Part A is therefore not a material factor with regard to the impact assessment.
Other.	Due to the distance between Part A and the European Site (9.5 km in a straight line); impacts to the European Site from noise, lighting and odour are not anticipated. A suite of ecological surveys and assessments have been undertaken on Part A to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered that in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB.

European Site under Consideration:	North Northumberland Dunes SAC
	– Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[14]:	
Name of European Site and its EU Code	The European Site under consideration is the North Northumberland Dunes SAC (UK0017097).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located at NZ 27870 96748, located approximately 9.5 km east directly from Part A and 21.5 km downstream via the River Coquet. The River Coquet currently flows under the existing A1 and is crossed by a road bridge at approximately NZ 17438 99793. This crossing point would be supported by a new bridge adjacent to the existing, retained structure.

[14] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in January 2020.

European Site under Consideration:	**North Northumberland Dunes SAC**
European Site size	1,127.27 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	North Northumberland Dunes SAC Citation: The site qualifies under Article 4(4) of the EC Habitats Directive (2009/147/EC) as it hosts the following habitats listed in Annex I: – Embryonic shifting dunes. – Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"). – Fixed coastal dunes with herbaceous vegetation ("grey dunes"). – Dunes with *Salix repens* ssp, *argentea* (*Salicion arenariae*). – Humid dune slacks. The site also qualifies under Article 4(4) for hosting the following Annex II species: – Petalwort *Petalophyllum ralfsii*.
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The North Northumberland Dunes SAC – Standard Data Form, 25 January 2016: The following 'threats and pressures' to the SAC are identified and ranked as 'high': – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Interspecific faunal relations (K03). – Invasive non-native species (I01). – Outdoor sports and leisure activities, recreational activities (G01). Runoff from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	European Site Conservation Objectives for North Northumberland Dunes Special Area of Conservation Site Code: UK0017097. Publication date 27 November 2018 (Version 3). "*With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed above), and subject to natural change;*

European Site under Consideration:	North Northumberland Dunes SAC
	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: – *The extent and distribution of qualifying natural habitats and habitats of qualifying species.* – *The structure and function (including typical species) of qualifying habitats.* – *The structure and function of the habitats of qualifying species.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site."* Qualifying features: – H2110. Embryonic shifting dunes. – H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram. – H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland. – H2170. Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*); Dunes with creeping willow; – H2190. Humid dune slacks. – S1395. Petalwort.
Assessment Criteria:	
The European Site is situated approximately 9.5 km east of Part A, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part A. As detailed in the 'Description of Part A – Emissions' section above, traffic modelling included an assessment of Part A both alone, in combination with Part B (i.e. the Scheme) and in combination with ten other road schemes. The modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads	

European Site under Consideration:	North Northumberland Dunes SAC

within 200 m). As such, impacts as a result of changes in air quality are not considered further in the Initial Assessment below.

The European Site is 21.5 km downstream from Part A via the River Coquet. Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents.

As Part A is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.

Initial Assessment:	
Reduction of habitat area	No Impact. Part A does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works.
Disturbance to key species	No Impact. The European Site is designated for its habitats and floral species. The European Site is situated 9.5 km from Part A. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part A' section above).
Habitat or species fragmentation	No Impact. There would be no fragmentation of the coastal habitat for which the European Site is designated.
Reduction in species density	No Impact. Part A does not support any of the habitats or floral species for which the European Site is designated. The European Site is linked to Part A hydrologically via the River Coquet. The inclusion within the design of Part A of an appropriate drainage strategy (in terms of best practice and design) proposed for Part A would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching

European Site under Consideration:	North Northumberland Dunes SAC
	drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (as detailed in the WFD assessment) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is highly unlikely that Part A would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part A would not incur any hydrological impacts to the European Sites in isolation, it would not contribute to any in combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part A would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part A. As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Climate change	No associated impact because of Part A. The integrity of the European Site may be impacted by changes in sea level because of climate change. However, upon completion, Part A would result in improved efficiency in traffic movements (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)), reducing collective emissions in the long-term that would otherwise contribute to climate change. The impacts of climate change are therefore unlikely to be compounded because of Part A. There is also anticipated to be a net reduction in per vehicle

European Site under Consideration:	North Northumberland Dunes SAC
	emissions over coming years (**Ref. 11**), as evidenced by latest vehicle sales statistics for the UK. Part A would not result in significant increases to vehicular traffic and associated emissions along roads within 200 m of the European Site. Part A would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part A is situated a significant distance away from the European Site (9.5 km in a straight line and 21.5 km downstream via the River Coquet).
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.

European Site under Consideration:	North Northumberland Dunes SAC
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the North Northumberland Dunes SAC are anticipated because of Part A, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attached relevant correspondence)	Natural England has confirmed agreement with the conclusions set out in this Report for Part A. Agreement is evidenced in **Appendix C**.

2.6. COQUET ISLAND SPECIAL PROTECTION AREA

Table 2-5 - Coquet Island Special Protection Area – Part A

European Site under Consideration:	Coquet Island SPA
Description of Scheme:	
Size and scale (road type and probable traffic volume)	Part A is located in Northumberland, extending for 12.6 km between Warreners House Interchange at Morpeth to the dual carriageway at Felton. Part A comprises the dualling of the existing A1 single carriageways, de-trunking of a section of the existing A1, four overbridges (three of which are new grade-separated junctions), an underbridge (beneath Part A's main alignment), a new subway (beneath Part A's main alignment), a new bridge over the River Coquet and new and extended culverts, together with new

European Site under Consideration:	Coquet Island SPA
	and improved ancillary features such as signage and road markings. Between the southern extent of Part A (where the A1 meets the A697 near Northgate Hospital and Warreners House in Morpeth) and Priest's Bridge, additional capacity would be provided by online widening of the carriageway to two carriageways in each direction. Between Priest's Bridge and Burgham Park, Part A would comprise a new offline section of dual carriageway to the west of the existing A1 passing west of Earsdon Moor and east of Causey Park. Between Burgham Park and Parkwood, widening would be online to two carriageways in each direction until the tie in point west of Felton where the existing A1 is dual carriageway. Part A would also include the closure of existing, and provision of new, private means of access and other access tracks. Furthermore, some side roads would be altered; Bywell Road would be realigned north of its existing junction with the A1; a new link road would be constructed to link the existing A1 to the proposed Fenrother junction; and a new link road would be constructed to the east of Part A to link the bypassed section of existing A1 with the proposed West Moor Junction and Felton Road. The total area of Part A is approximately 242 hectares (ha) in size, of which 167 ha would be permanently required (including land already owned by the Applicant). **Traffic Flows** The national speed limit would be retained along main alignment of Part A.

European Site under Consideration:	Coquet Island SPA
	Traffic modelling[15] indicates the AADT along the existing A1 of Part A (north and southbound) without improvement as approximately 25,400 AADT. Upon completion of Part A, two-way traffic along the dualled A1 of Part A would be approximately 36,400 AADT and the de-trunked section of the existing A1 would be 3,000 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Coquet Island SAC (the European Site) is situated approximately 12.1 km to the east of Part A in a straight line. The European Site is located approximately 24.5 km downstream of Part A via the River Coquet. The European Site is not within a zone of influence of the mouth of the River Lyne. The River Lyne is therefore not considered further with respect to the assessment of impacts to the European Site.
Land-take	There would be no land-take within the boundary of the European Site, which represents an off-shore island. Land take for Part A is primarily associated with the new offline section, which is located approximately 12.1 km to from the European Site in a straight line. Therefore, no direct impacts upon the European Site are anticipated to result from the destruction of habitat by new works during either the construction or operational stages of Part A.

[15] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Coquet Island SPA
Distance from the European Site or key features of the site (from edge of the Order Limits of Part A, shown in **Appendix A**)	The European Site is situated approximately 12.1 km to the east of Part A in a straight line and 24.5 km downstream via the River Coquet (including 2 km from the mouth of the river). Taking into consideration the intervening distance, no impacts on the European Site are anticipated as a result of Part A during the construction or operational stages.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	Resource requirements for Part A are considered to have no potential to impact the European Site. No materials would be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated as a result of resource requirements during the construction or operational stages of Part A.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	As the European Site represents an island approximately 1.3 km offshore and not connected to the mainland (including Part A) by roads; there would be no impacts as a result of vehicle emissions. Vehicle emissions are therefore not considered further. Part A crosses the River Coquet, the mouth of which is close to the European Site; approximately 24.5 km downstream (including 2 km from the mouth of the river). Part A would require works over and in the River Coquet. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a result of pollution events or polluted surface water runoff during the construction or operational stages. In addition, the design of Part A incorporates a network of detention basins that shall further reduce

European Site under Consideration:	Coquet Island SPA
	the likelihood of polluted surface water runoff during operation of Part. The detention basins incorporate, as applicable, embedded mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT (**Chapter 10: Road Drainage and Water Environment, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part A.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part A are primarily located along the new offline section and associated with structural foundations and landscape reprofiling. Excavation in relation to widening would be confined along either side of the existing A1 carriageway. It is predicted that Part A would result in a surplus of 320,000 m^3 of excavated materials. Surplus material would be used within the Order Limits of Part A to create proposed environmental bunds or alternatively be removed off-site. This may include exporting surplus materials for use on Part B and/or use on other schemes being developed by the Applicant in the North East. Drainage management including silt traps would be implemented during construction. Drainage basins have been being incorporated into the design of Part A. As detailed in **Chapter 11: Geology and Soils, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**), the Study Area

European Site under Consideration:	Coquet Island SPA
	incorporated the Order Limits of Part A plus a buffer of 250 m (**Figure 11.1: Study Area, Volume 5** of the ES (**Application Document Reference: TR010041/APP/6.5**)). It was considered that this is the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part A. As the European Site is outside this Study Area, no impacts are predicted. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part A. No excavations will be required at the operational stage of Part A.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part A, which are approximately 12.1 km from the European Site (in a straight line). As per the 'Emissions' section above, impacts from vehicular traffic during the construction and operational stages have been screened out. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part A.
Duration of construction, operation, etc.	Advanced works are anticipated to start in 2020 and include the proposed Northern Gas Networks, Northern Power Grid and the main High-Pressure Gas Main diversions. The anticipated start date for Part A's mainline construction is March 2022 and Part A is expected to be open for traffic in 2024. Taking into consideration the absence of any likely impacts on the European Site identified, the duration of construction and operation of Part A is therefore not a material factor with regard to the impact assessment.

European Site under Consideration:	Coquet Island SPA
Other.	Due to the distance between Part A and the European Site (12.1 km in a straight line); impacts to the European Site from noise, lighting and odour are not anticipated. A suite of ecological surveys and assessments have been undertaken on Part Ae to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered that in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.

European Site under Consideration:	Coquet Island SPA
Description of avoidance and/or mitigation measures	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[16]:	
Name of European Site and its EU Code	The European Site under consideration is the Coquet Island SPA (UK9006031).
Location and distance of the European Site from the proposed works	The European Site is located off the northeast coast of England. The nearest point is located at NU 29245 04397, located approximately 12.1 km east directly from Part A and 24.5 km downstream via the River Coquet (including approximately 2 km from the mouth of the river). The River Coquet currently flows under the existing A1 and is crossed by a road bridge at approximately NZ 17438 99793. This crossing point would be supported by a new bridge adjacent to the existing, retained structure.
European Site size	19.92 ha

[16] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in January 2020.

European Site under Consideration:	Coquet Island SPA
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Coquet Island SPA Citation 2017: This site qualifies under Article 4.1 of the Directive (2009/147/EC) by supporting more than 1% of the Great British populations of four species listed on Annex I of the Birds Directive. This includes: – Arctic tern, 1,230 pairs representing 2.32% of the breeding population in Great Britain (count period 2010-2014). – Common tern, 1,189 pairs representing 11.89% of the breeding population in Great Britain (count period 2010-2014). – Roseate tern, 80 pairs representing 93.03% of the breeding population in Great Britain (count period 2010-2014). – Sandwich tern, 1,300 pairs representing 11.82% of the breeding population in Great Britain (count period 2010-2014). The site qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 seabirds in any season. During the breeding season (2010-2014), the area regularly supports 47,662 individual seabirds including: black-headed gull, Atlantic puffin, Arctic tern, common tern, roseate tern and sandwich tern.
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	Coquet Island SPA – Standard Data Form, 30 June 2017: The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'high': – Outdoor sports and leisure activities, recreational activities (G01). – Changes in biotic conditions (M02). – Invasive non-native species (I01). – Interspecific faunal relations (K03). – Other human intrusions and disturbances (G05). Runoff from roads or pollution from upstream construction activities are not identified as a specific threat.

European Site under Consideration:	Coquet Island SPA
European Site conservation objectives – where these are readily available	European Site Conservation Objectives for Coquet Island Special Protection Area Site Code UK9006031. Publication date: 21 February 2019 (Version 3) "*Regarding the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change:* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;* – *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site".* Qualifying Features: – A191 Sandwich tern (Breeding) – A192 Roseate tern (Breeding) – A193 Common tern (Breeding) – A194 Arctic tern (Breeding)
Assessment Criteria:	
The European Site is situated approximately 12.1 km east of Part A, direct route; located offshore and not connected to the mainland (and Part A) via roads. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part A. The European Site is 24.5 km downstream from Part A via the River Coquet, including approximately 2 km from the mouth of the river. Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part A is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and	

European Site under Consideration:	Coquet Island SPA
approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part A does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works.
Disturbance to key species	No Impact. The European Site is situated 12.1 km from Part A and approximately 1.3 km offshore. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part A' section above). The breeding bird surveys completed between March and July 2016 (**Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and the wintering bird surveys completed between October 2016 and February 2017 (**Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)) and in February 2020 (**Appendix 9.26: Wintering Bird Verification Survey Report, Volume 7** of the ES) did not record any of the selection criteria species of the European Site within the surveyed area (the Order Limits of Part A plus 500 m[17]). The absence of qualifying species recorded within the surveyed area is sufficient to screen out impacts of disturbance to qualifying species.

[17] Refined to the Order Limits of Part A plus 100 m for the 2020 verification survey.

European Site under Consideration:	Coquet Island SPA
Habitat or species fragmentation	No Impact. The European Site is situated 12.1 km from Part A and approximately 1.3 km offshore. There would be no fragmentation of the European Site is designated.
Reduction in species density	No Impact. None of the qualifying species of the European Site were recorded within the surveyed area. As such, there would be no reduction in species density (qualifying species) as a result of Part A. The European Site is linked to Part A hydrologically via the River Coquet. The inclusion within Part A design of an appropriate drainage strategy (in terms of best practice and design) proposed for Part A would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (as detailed in the WFD assessment) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is highly unlikely that Part A would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part A would not incur any hydrological impacts to the European Sites in isolation, it would not contribute to any in combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part A would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part A.

European Site under Consideration:	Coquet Island SPA
	As Part A would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in combination effects.
Climate change	No associated impact because of Part A. The integrity of the European Site may be impacted by changes in sea level because of climate change. However, upon completion, Part A would result in improved efficiency in traffic movements (**Chapter 5: Air Quality, Volume 2** of the ES (**Application Document Reference: TR010041/APP/6.2**)), reducing collective emissions in the long-term that would otherwise contribute to climate change. The impacts of climate change are therefore unlikely to be compounded because of Part A. There is also anticipated to be a net reduction in per vehicle emissions over coming years (**Ref. 11**), as evidenced by latest vehicle sales statistics for the UK. Part A would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part A is situated a significant distance away from the European Site (12.1 km in a straight line and 24.5 km downstream via the River Coquet, including approximately 2 km from the mouth of the river).
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.

European Site under Consideration:	Coquet Island SPA
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Coquet Island SPA are anticipated because of Part A, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attached relevant correspondence)	Natural England has confirmed agreement with the conclusions set out in this Report for Part A. Agreement is evidenced in **Appendix C**.

3. PART B - HRA SCREENING MATRICES

3.1. INTRODUCTION

3.1.1. These checklists are provided as information for individuals completing an AA and are not required as part of submissions to statutory environmental bodies or the competent authority.

3.1.2. One table (matrix) has been provided below for each of the following European Sites under consideration in a separate section as detailed below.

a. **Section 3.2** - Northumberland Marine SPA
b. **Section 3.3** - Northumbria Coast SPA
c. **Section 3.4** - Northumbria Coast Ramsar
d. **Section 3.5** - Berwickshire & North Northumberland Coast SAC
e. **Section 3.6** - North Northumberland Dunes SAC
f. **Section 3.7** - Newham Fen SAC
g. **Section 3.8** - River Tweed SAC

3.2. NORTHUMBERLAND MARINE SPA

Table 3-1 – Northumberland Marine SPA – Part B

European Site under Consideration:	**Northumbria Marine SPA**
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an accommodation overbridge at Heckley Fence. The total area of Part B is approximately 120 ha in size of which 75 ha would be permanently required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B.

European Site under Consideration:	Northumbria Marine SPA
	Traffic modelling[18] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Northumberland Marine SPA (the European Site) is situated approximately 3.7 km (in a straight line) east of Part B.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B. Land take associated with Part B, however, could potentially affect qualifying features of the European Site. This could potentially occur if qualifying features, e.g. black headed gull, rely on arable habitats as a foraging resource. These birds could potentially comprise breeding birds associated with the European Site. The land take of Part B represents a permanent loss of approximately 33 ha and a temporary loss of approximately 14 ha of arable habitat. The potential significance of this loss is described in the 'Initial Assessment' section of this table.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 3.7 km (in a straight line) east of Part B and 9.2 km downstream via the Mill Burn and Brunton Burn.

[18] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumbria Marine SPA
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES **(Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**).

European Site under Consideration:	Northumbria Marine SPA
	The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation to surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.7 km (in a straight line) east of Part B and 9.2 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on the European Site, or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of Water Framework Directive (WFD) compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[19] (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES **(Application**

[19] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet-based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Northumbria Marine SPA
	Document Reference: TR010041/APP/6.3)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled water receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in

European Site under Consideration:	Northumbria Marine SPA
	Chapter 2: The Scheme, Volume 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 3.7 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc.	The anticipated start date for the works (mobilisation) is December 2021 with a proposed 22 months construction duration. Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other.	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 3.7 km to the east. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this

European Site under Consideration:	Northumbria Marine SPA
	table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A

European Site under Consideration:	Northumbria Marine SPA
Characteristics of European Site[20]:	
Name of European Site and its EU Code	The European Site under consideration is Northumberland Marine SPA (UK9020325).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located approximately 3.7 km east (in a straight line) from Part B. The European Site is approximately 9.2 km downstream of Part B via the Mill Burn and Brunton Burn.
European Site size	88,498.35 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumberland Marine SPA Designation: The site qualifies under Article 4 of the Birds Directive (2009/147/EC) for the following reasons: – The site regularly supports more than 1% of the Great Britain breeding populations of five species listed in Annex 1 of the EC Birds Directive; sandwich tern *Sterna sandvicensis*, common tern *Sterna hirundo*, arctic tern *Sterna paradisaea*, Roseate tern *Sterna dougallii* and little tern *Sternula albifrons*. – The site regularly supports more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex 1 of the EC Birds Directive; Atlantic puffin *Fratercula arctica* and common guillemot *Urla aalge*. The site qualifies under Article 4.2 of the Directive (2009/147/EC) as it used regularly by over 20,000 seabirds in any season.

[20] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	Northumbria Marine SPA
	During the breeding season the European Site supports 214,669 individual seabirds including (in addition to those listed above): – Great cormorant *Phalacrocorax carbo*, 230 breeding adults, representing 1.37% of the breeding UK population. – European shag *Phalacrocorax aristotelis*, 1,677 breeding adults, representing 3.11% of the breeding UK population. – Black-headed gull *Larus ridibundus*, 8,745 breeding adults, representing 3.36% of the breeding UK population. – Black-legged kittiwake *Rissa tridactyla*, 8,667 breeding adults, representing 1.17% the UK population.
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumberland Marine SPA – Standard Data Form: The following 'threats and pressures' to the European Site are identified and ranked as 'medium': – Outdoor sports and leisure activities, recreational activities (G01). The following 'threats and pressures' to the European Site are identified and ranked as 'low': – Marine and Freshwater Aquaculture (F01). Run-off from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for Northumberland Marine SPA are quoted below. (Publication date 21 February 2019 (Version 3), page 1). "*With regard to this SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change.* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring*;

European Site under Consideration:	Northumbria Marine SPA
	– *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site".* Qualifying Features: – A191 Sandwich tern (Breeding) – A192 Roseate tern (Breeding) – A193 Common tern (Breeding) – A194 Arctic tern (Breeding) – A195 Little tern (Breeding) – A199 Common guillemot (Breeding) – A204 Atlantic puffin (Breeding) – Seabird assemblage
Assessment Criteria:	
The European Site is situated approximately 3.7 km east of Part B and is more than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B. As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European Site (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below. The European Site is located approximately 9.2 km downstream of Part B via the Mill Burn and Brunton Burn. The hydrological assessment screens out impacts over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out. As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	

European Site under Consideration:	Northumbria Marine SPA
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no reduction in the extent of the SPA because of the works. Wintering and breeding bird surveys were undertaken to inform the ES for Part B during spring 2016 and winter 2016/17 respectively. Further details can be found in **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The Survey Area encompassed the Order Limits of Part B plus 500 m. A qualifying species of the European Site, Black-headed gull, was recorded during both the winter and breeding season surveys. Black-headed gull is a qualifying species within the breeding assemblage with a cited population of 8,745 birds. Wintering bird surveys recorded peak counts of 20, 191, 124, 178 and 252 in October 2016, November 2016, December 2016, January 2017 and February 2017 respectively. British black-headed gull populations are known to remain, for the most part, within Britain during the winter with birds moving west within the UK and into Ireland (**Ref. 15**). Native population numbers are swelled by migrating continental birds, from a population of 130,000 pairs (**Ref. 16**) to 2.2 million birds (**Ref. 17**) and these birds commonly locate along the east of the UK. The wintering populations recorded during surveys are likely to be dominated by continental breeding birds with resident birds which may breed in the SPA making only a minor contribution to numbers. The first breeding bird survey in March 2016 recorded a peak count of 1,124 black-headed gulls, theoretically representing up to 12.9% of the SPA breeding population. This peak count was made up of one large flock of 600 birds recorded following a plough approximately 400 m from the Order Limits of Part B, a flock of 280 birds foraging in arable fields approximately 360 m from the Order Limits of Part B, several smaller flocks of between 30 and 50 birds and small groups of less than 10 and individuals across the Survey Area.

European Site under Consideration:	Northumbria Marine SPA
	Very few black-headed gulls were recorded during surveys in April 2016, May 2016 and July 2016 with peak counts of 37, 43 and 1 recorded respectively. Of these records none were recorded within the Order Limits of Part B. The core egg laying period for black-headed gulls in the UK extends from late April to early July (**Ref. 18**). Birds recorded in March, therefore, are unlikely to comprise actively breeding birds associated with the European Site. Studies of black-headed gull migration in Britain (**Ref. 15**) show that birds begin to migrate back to breeding sites in February, with the migration peak in March and with migration almost complete by April. It is highly likely then that birds recorded during surveys in March comprised both British residents returning to breeding sites (within and outside the European Site) and continental bird on passage back to continental breeding sites. The large flock of 600 birds was attracted by the ploughing activity on the arable farmland and does not provide an accurate indication of how the arable habitat is used by black-headed gulls normally. The flock of 280 birds was also recorded on a recently ploughed field. These large gatherings of black-headed gulls were taking advantage of a local, transient abundance of earthworms and other invertebrates (**Ref. 19**) provided by the ploughing of fields and were gathered together in dense numbers that would otherwise have been distributed across the wider arable landscape. The distribution of the small flocks is believed to provide an indication of the normal distribution of birds across the wider area. The relatively low number of black-headed gull recorded in the Survey Area during the main breeding period (April to July), indicates that the Survey Area is of negligible importance as a foraging resource for breeding birds. The land take of Part B represents a permanent loss of approximately 33 ha and a temporary loss of approximately 14 ha of agricultural habitat. The maximum forging range of breeding black-headed gull is estimated at approximately 18.5 km from breeding colonies (**Ref. 20**). The total area of agricultural land within 18.5 km of the European Site is approximately 184,738 ha. The total loss of agricultural land in relation

European Site under Consideration:	Northumbria Marine SPA
	to Part B (both permanent and temporary) therefore corresponds to approximately 0.03% of available terrestrial foraging habitat. The area lost is therefore a negligible proportion of the available foraging habitat for black-headed gull. In addition, black-headed gulls also forage in the marine environment, which provides an additional foraging resource to the birds (**Ref. 20**). Due to the above factors, in parallel with the low number of black-headed gull recorded during the main breeding period, the loss of foraging habitat is considered to be of negligible effect. As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. The presence of Schedule 9 invasive plant species was recorded as part of Phase 1 habitat surveys for Part B conducted in March 2019 to inform the ES. Additionally, incidental records of Schedule 9 invasive plants were recorded during riparian mammal surveys undertaken in May 2019 and June 2019. All results were collated in **Appendix 9.1: Habitats and Designated Sites, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Himalayan balsam *Impatiens glandulifera* was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton burn before discharging into the European Site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast.

European Site under Consideration:	Northumbria Marine SPA
	The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0. This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent **(Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
Disturbance to key species	No Impact There will be no disturbance to qualifying species within the European Site because of the significant distance between Part B and the European Site. As described in 'Reduction of Habitat Area' low numbers of black-headed gulls were recorded in the bird Survey Area during the main breeding period (April to July). Higher numbers of black-head gull observed in March would likely comprise a high proportion of over wintering or migratory black-headed gull not associated with the European Site breeding population. In addition, black-headed gulls readily habituate to human activity and the highest species count recorded during the surveys to inform the ES was related to on-going human activity (ploughing). Survey results recorded small groups of black-headed gulls within 40 m of the existing carriageway including one record of six birds within 10 m. Tolerance to human disturbance, as evidenced by survey and anecdotal information and referred to in literature (**Ref. 22**), in combination with black-headed gull population dynamics, foraging and migration phenology support the conclusion of negligible effects of disturbance.
Habitat or species fragmentation	No Impact. The European Site is situated 3.7 km from Part B. There would be no fragmentation of the European Site.

European Site under Consideration:	Northumbria Marine SPA
Reduction in species density	No Impact. There would be no reduction in species density as a result of Part B. With the exception of black- headed gull, none of the qualifying species supported by the European Site were recorded within the bird Survey Area. As detailed in the 'Reduction of Habitat Area and Disturbance to Key Species' sections above negligible effects of habitat loss and disturbance are anticipated. No direct effects on European Site habitat are anticipated as a result of habitat degradation or loss due to pollution or invasive species. The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B.

European Site under Consideration:	Northumbria Marine SPA
	As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology **(Ref. 11)** (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES **(Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundaries of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and their qualifying species have been identified.
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.

European Site under Consideration:	Northumbria Marine SPA
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumberland Marine SPA are anticipated because of Part B, either alone or in-combination	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F.**

3.3. NORTHUMBRIA COAST SPA

Table 3-2 – Northumbria Coast SPA – Part B

European Site under Consideration:	Northumbria Coast SPA
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total area of Part B is approximately 120 ha in size; of which 75 ha would be permanent required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2:**

European Site under Consideration:	Northumbria Coast SPA
	The Scheme, Volume 1 of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B. Traffic modelling[21] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Northumbria Coast SPA (the European Site) is situated approximately 4.7 km (in a straight line) east of Part B and approximately 9 km downstream via the Mill Burn and Brunton Burn. The boundary of the Northumbria Coast SPA is shared with the Northumbria Coast Ramsar.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 4.7 km (in a straight line) east of Part B.

[21] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumbria Coast SPA
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8).**

European Site under Consideration:	Northumbria Coast SPA
	The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. As such, there will be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[22] (**Chapter 10: Road Drainage and the**

[22] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet-based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Northumbria Coast SPA
	Water Environment, Volume 3 of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled waters receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area

European Site under Consideration:	Northumbria Coast SPA
	and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A.. As such, transportation activities would be approximately 4.7 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc.	The anticipated start date for the works (mobilisation) is December 2021 with a proposed 22 months construction duration. Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other.	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 4.7 km to the east. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species.

European Site under Consideration:	Northumbria Coast SPA
	The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A

European Site under Consideration:	Northumbria Coast SPA
Characteristics of European Site[23]:	
Name of European Site and its EU Code	The European Site under consideration is Northumbria Coast SPA (UK9006131).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located approximately 4.7 km (in a straight line) east from Part B. The European Site is located approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn.
European Site size	1,097.45 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumbria Coast SPA Citation 2017: This site qualifies under Article 4 of the Birds Directive (2009/147/EC) for the following reasons: – The site regularly supports more than 1% of the Great British populations of two species listed in Annex I of the Birds Directive. – The site regularly supports more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex I of the Birds Directive. Qualifying species include; – Little tern *Sterna albifrons*, 1.7% of the breeding population in Great Britain (5 year peak mean 1993 - 1997). – Arctic tern *Sterna paradisaea*, 2.92% of the British population (5 year peak mean 2010 - 2014). – Purple sandpiper *Calidris maritima*, 763 individuals representing at least 1.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1992/93 - 1996/97).

[23] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	Northumbria Coast SPA
	– Ruddy turnstone *Arenaria interpres*, 2.6% of the wintering Western Palearctic - wintering population (5 year peak mean 1992/3 - 1996/7).
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumbria Coast Natura 2000 – Standard Data Form: The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'high': – Outdoor sports and leisure activities, recreational activities (G01). – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Other human intrusions and disturbances (G05). The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'medium': – Interspecific faunal relation (K03). Natural England Site Improvement Plan (SIP) for Northumberland Coastal (SIP 157), Version 1.0, 29 April 2015: The Northumberland Coastal SIP covers five European Sites including the Northumbria Coast SPA. The plan identifies thirteen priority issues for these sites including public access, water pollution, invasive species, direct impact from third party, transportation and service corridors and air pollution. Run-off from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for Northumbria Coast SPA are quoted below (Publication date: 21 February 2019 (Version 3), page 1). "*With regard to this SPA and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' including the 'Additional Qualifying Features' listed below), and subject to natural change*: *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site*

European Site under Consideration:	Northumbria Coast SPA
	contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: – *The extent and distribution of the habitats of the qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site*". Qualifying Features: – A148 Purple sandpiper (Non-breeding). – A169 Ruddy turnstone (Non-breeding). – A195 Little tern (Breeding). – A194 Arctic tern (Breeding).

Assessment Criteria:

The European Site is situated approximately 4.7 km east of Part B and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B.

As detailed in the 'Description of Part B – Emissions' section above, traffic modelling included an assessment of Part B both alone and in combination with other major road schemes. The modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below.

The European Site is located approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn. The hydrological assessment screens out impact over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out

As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.

European Site under Consideration:	Northumbria Coast SPA
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no direct reduction in habitat area because of the works. As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as little tern if invasive species colonise and spread through the European Site. The presence of Schedule 9 invasive plant species was recorded as part of Phase 1 habitat surveys for Part B conducted in March 2019 to inform the ES for the Scheme. Additionally, incidental records of Schedule 9 invasive plants were recorded during riparian mammal surveys undertaken in May 2019 and June 2019. All results were collated in **Appendix 9.1: Habitats and Designated Sites, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before reaching the boundary of the European Site (a distance of approximately 9 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are

European Site under Consideration:	Northumbria Coast SPA
	usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0. This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (**Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
Disturbance to key species	No Impact There will be no disturbance to qualifying species within the European Site because of the significant distance between Part B and the European Site. Wintering and breeding bird surveys were undertaken to inform the ES for the Scheme during 2016 and 2016/17 respectively. Further details can be found in **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The surveys did not record any of the qualifying species of the European Site within the surveyed area (Order Limits of Part B plus 500 m). The absence of qualifying species recorded within the surveyed area is sufficient to screen out impacts of disturbance to qualifying species.
Habitat or species fragmentation	No Impact. The European Site is situated 4.7 km from Part B. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. None of the qualifying species of the European Site were recorded within the surveyed area. As such, there would be no reduction in species density (qualifying species) as a result of Part B. The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application**

European Site under Consideration:	Northumbria Coast SPA
	Document Reference: TR010041/APP/6.3)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology **(Ref. 11)** (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B.
Describe any likely impacts on the European Site in terms of:	

European Site under Consideration:	**Northumbria Coast SPA**
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and its qualifying species have been identified.
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumbria Coast SPA are anticipated because of Part B, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**

European Site under Consideration:	Northumbria Coast SPA
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F**.

3.4. NORTHUMBRIA COAST RAMSAR

Table 3-3 – Northumbria Coast Ramsar – Part B

European Site under Consideration:	Northumbria Coast Ramsar
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total area of Part B is approximately 120 ha in size of which 75 ha would be permanently required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B. Traffic modelling[24] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part

[24] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Northumbria Coast Ramsar
	B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Northumbria Coast Ramsar (the European Site) is situated approximately 4.7 km (in a straight line) east of Part B and approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn. The boundary of the Northumbria Coast Ramsar is shared with the Northumbria Coast SPA.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 4.7 km (in a straight line) east of Part B.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site.

European Site under Consideration:	Northumbria Coast Ramsar
	As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part B can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application**

European Site under Consideration:	Northumbria Coast Ramsar
	Document Reference: TR010041/APP/6.3)). The European Site is located approximately 4.7 km (in a straight line) east of Part B and approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out. In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[25] (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.31**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural

[25] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Northumbria Coast Ramsar
	foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled waters receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or

European Site under Consideration:	Northumbria Coast Ramsar
	transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to the 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc	The anticipated start date for the works (mobilisation) is December 2021 and Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 4.7 km to the east. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on pollution prevention methods, controls on noise, construction

European Site under Consideration:	Northumbria Coast Ramsar
	lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A

European Site under Consideration:	Northumbria Coast Ramsar
Characteristics of European Site[26]:	
Name of European Site and its EU Code	The European Site under consideration is Northumbria Coast Ramsar (UK11049).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England approximately 4.7 km east directly from Part B. The European Site is located approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn.
European Site size	1,107.98 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Northumbria Coast Information Sheet on Ramsar Wetlands (RIS), Version 3.0, 5 May 2006: Ramsar Criterion 6 – species/populations occurring at levels of international importance. Qualifying Species/populations (as identified at designation): Species regularly supported during the breeding season: – Little tern, W Europe 43 apparently occupied nests, representing an average of 2.2% of the GB population (Seabird 2000 Census). Species with peak counts in winter: – Purple sandpiper, E Atlantic –wintering 291 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3). – Ruddy turnstone, NE Canada, Greenland/W Europe & NW Africa 978 individuals, representing an average of 1% of the

[26] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	Northumbria Coast Ramsar
	population (5 year peak mean 1998/9-2002/3).
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Northumbria Coast Natura 2000 – Standard Data Form: The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'high': – Outdoor sports and leisure activities, recreational activities (G01). – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Other human intrusions and disturbances (G05). The following 'threats and pressures' to the Northumbria Coast designated site are identified and ranked as 'medium': – Interspecific faunal relation (K03). Natural England Site Improvement Plan (SIP) for Northumberland Coastal (SIP 157), Version 1.0, 29 April 2015: The Northumberland Coastal SIP covers five European Sites including the Northumbria Coast SPA. As the Ramsar site is designated due to presence of the same species as the SPA it is considered that the threats and pressures applicable to the SPA are also applicable to the Ramsar site. The plan identifies thirteen priority issues for these sites including public access, water pollution, invasive species, direct impact from third party, transportation and service corridors and air pollution. Run-off from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	There are no conservation objectives identified for the Northumbria Coast Ramsar. However, as the Northumbria Coast SPA covers the same geographical area, it is considered that the objectives for the SPA are also applicable to the Ramsar site.

European Site under Consideration:	Northumbria Coast Ramsar
	The European Site Conservation Objectives for Northumbria Coast SPA are quoted below (Publication date: 21 February 2019 (Version 3), page 1). "*With regard to this SPA and the individual species and/or assemblage of species for which the site has been or may be classified (the 'Qualifying Features' including the 'Additional Qualifying Features' listed below), and subject to natural change:* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:* – *The extent and d*istribution of the habitats of the *qualifying features.* – *The structure and function of the habitats of the qualifying features.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site*". Qualifying Features: – A148 Purple sandpiper (Non-breeding). – A169 Ruddy turnstone (Non-breeding). – A195 Little tern (Breeding). – A194 Arctic tern (Breeding).
Assessment Criteria:	
The European Site is situated approximately 4.7 km east of Part B, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B. As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below. The European Site is located approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn. The hydrological assessment screens out impact over 1 km downstream from Part B. This is due to the distance of the European Site from Part B	

European Site under Consideration:	Northumbria Coast Ramsar
and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no direct reduction in habitat area because of the works. As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as little tern if invasive species colonise and spread through the European Site. The presence of Schedule 9 invasive plant species was recorded as part of Phase 1 habitat surveys for Part B conducted to in March 2019 inform the ES the Scheme. Additionally, incidental records of Schedule 9 invasive plants were recorded during riparian mammal surveys undertaken in May 2019 and June 2019. All results were collated in **Appendix 9.1: Habitats and Designated Sites, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before reaching the boundary of the European Site (a distance of approximately 9 km downstream).

European Site under Consideration:	Northumbria Coast Ramsar
	There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0. This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (**Ref. 21**)**.** Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
Disturbance to key species	No Impact There will be no disturbance to qualifying species within the European Site because of the significant distance between Part B and the European Site. Wintering and breeding bird surveys were undertaken for Part B to inform the ES for the Scheme during 2016 and 2016/17 respectively. Further details can be found in **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The surveys did not record any of the qualifying species of the European Site within the surveyed area (Order Limits of Part B plus 500 m). The absence of qualifying species recorded within the surveyed area is sufficient to screen out impacts of disturbance to qualifying species.

European Site under Consideration:	Northumbria Coast Ramsar
Habitat or species fragmentation	No Impact. The European Site is situated 4.7 km from Part B. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. None of the qualifying species of the European Site were recorded within the surveyed area. As such, there would be no reduction in species density (qualifying species) as a result of Part B. The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B.

European Site under Consideration:	Northumbria Coast Ramsar
	As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology (**Ref. 11**) (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and its qualifying species have been identified.
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.

European Site under Consideration:	Northumbria Coast Ramsar
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Northumbria Coast Ramsar are anticipated because of Part B, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F.**

3.5. BERWICKSHIRE & NORTH NORTHUMBERLAND COAST SAC

Table 3-4 – Berwickshire & North Northumberland Coast SAC – Part B

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total area of Part B is approximately 120 ha in size of which 75 ha would be permanent required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B. Traffic modelling[27] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The Berwickshire & North Northumberland Coast SAC (the European Site) is situated approximately 4.7 km (in a straight line) east of Part B and approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 4.7 km (in a straight line) east of Part B.

[27] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**).

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part B can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km (in a straight line) east of Part B and approximately 9 km downstream of Part B via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[28] (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application**

[28] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	Document Reference: TR010041/APP/6.3)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporates the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled waters receptors of minor significance. Any effect on controlled water receptors within the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	Chapter 2: The Scheme, Volume 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc.	The anticipated start date for the works (mobilisation) is December 2021 with a proposed 22 months construction duration. Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other.	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 4.7 km to the east. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
Characteristics of European Site[29]:	
Name of European Site and its EU Code	The European Site under consideration is Berwickshire & North Northumberland Coast SAC (UK0017072).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located approximately 4.7 km east directly from Part B. The European Site is located approximately 9 km downstream of Part B via Mill Burn and Brunton Burn.
European Site size	65,226.12 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Berwickshire & North Northumberland Coast SAC Designation: The site qualifies for under Article 4 of the EC Habitats Directive (92/43/EEC) as it hosts the following habitats listed in Annex I: – Large shallow inlets and bays. – Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) – Reefs – Submerged or partially submerged sea caves Qualifying species: The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II: – Grey seal *Halichoerus grypus*
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	Berwickshire & North Northumberland Coast SAC Natura 2000 – Standard Data Form: The following 'threats and pressures' to the European Site are identified and ranked as 'high':

[29] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	– Human induced changes in hydraulic conditions (J02) – Outdoor sports and leisure activities, recreational activities (G01). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Other human intrusions and disturbances (G05). – Invasive non-native species (I01) Natural England Site Improvement Plan (SIP) for Northumberland Coastal (SIP 157), Version 1.0, 29 April 2015: The Northumberland Coastal SIP covers five European Sites including the Berwickshire & North Northumberland Coast SAC. The plan identifies thirteen priority issues for these sites including public access, water pollution, invasive species, direct impact from third party, transportation and service corridors and air pollution. Run-off from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for Berwickshire & North Northumberland Coast SAC are quoted below. (Publication date: 27 November 2018 (Version 4) page 1). " *With regards this SAC and the individual species for which the site has been or may be classified (the 'Qualifying Features' listed below), and subject to natural change:* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* – The extent and distribution of qualifying natural habitats and habitats of qualifying species; – The structure and function (including typical species) of qualifying natural habitats; – The structure and function of the habitats of qualifying species;

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	– The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; – The populations of qualifying species, and, – The distribution of qualifying species within the site." Qualifying Features: – H1140. Mudflats and sandflats not covered by seawater at low tide; intertidal mudflats and sandflats. – H1160. Large shallow inlets and bays; Shallow inlets and bays – H1170. Reefs – H8330. Submerged or partially submerged sea caves; sea caves – S1364. Grey seal
Assessment Criteria:	
The European Site is situated approximately 4.7 km east of Part B, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B. As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European sites (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below. The European Site is located approximately 9 km downstream of Part B via Mill Burn and Brunton Burn. The hydrological assessment screens out impact over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out. Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no direct reduction in habitat area because of the works. As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site habitat if invasive species colonise and spread through the European Site. The presence of Schedule 9 invasive plant species was recorded as part of Phase 1 habitat surveys conducted for Part B in March 2019 to inform the ES for the Scheme. Additionally, incidental records of Schedule 9 invasive plants were recorded during riparian mammal surveys undertaken in May 2019 and June 2019. All results were collated in **Appendix 9.1: Habitats and Designated Sites, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before reaching the boundary of the European Ste (a distance of approximately 9 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial or intertidal habitats of the European Site comprise the following:

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	– Large shallow inlets and bays. – Mudflats and sandflats not covered by seawater at low tide. (Intertidal mudflats and sandflats) – Reefs – Submerged or partially submerged sea caves These habitats are usually highly saline. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0. This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (**Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
Disturbance to key species	No Impact There will be no disturbance to qualifying species within the European Site because of the significant distance between Part B and the European Site. The sole qualifying species of the European Site (Grey seal) does not occupy terrestrial habitat beyond the coastal zone. Therefore, this species will not utilise habitat within or adjacent to Part B.
Habitat or species fragmentation	No Impact. The European Site is situated 4.7 km from Part B. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) proposed for the project would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it

European Site under Consideration:	Berwickshire & North Northumberland Coast SAC
	is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality, etc)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology **(Ref. 11)** (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B. Part B would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable.

European Site under Consideration:	**Berwickshire & North Northumberland Coast SAC**
Interference with key relationships that define the function of the site	There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and its qualifying species have been identified.
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Berwickshire and North Northumberland Coast SAC are anticipated because of Part B, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F**.

3.6. NORTH NORTHUMBERLAND DUNES SAC

Table 3-5 – North Northumberland Dunes SAC – Part B

European Site under Consideration:	**North Northumberland Dunes SAC**
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total area of Part B is approximately 120 ha in size of which 75 ha would be permanent required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B. Traffic modelling[30] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** the **Case for the Scheme** (**Application Document Reference:**

[30] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	North Northumberland Dunes SAC
	TR010041/APP/7.1). This information is relevant to emissions generated (discussed in further detail below). **European Site** The North Northumberland Dunes SAC (the European Site) is situated approximately 3.8 km (in a straight line) east of Part B and approximately 8.4 km downstream of Part B via the Mill Burn and Brunton Burn.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 3.8 km (in a straight line) east of Part B.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site.

European Site under Consideration:	North Northumberland Dunes SAC
	A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part B can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation to surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.8 km (in a straight line) east of Part B and approximately 8.4 km downstream of Part B via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out.

European Site under Consideration:	North Northumberland Dunes SAC
	In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[31] (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding

[31] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet-based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	North Northumberland Dunes SAC
	sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled waters receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 3.8 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to the 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.

European Site under Consideration:	North Northumberland Dunes SAC
Duration of construction, operation, etc.	The anticipated start date for the works (mobilisation) is December 2021 with a proposed 22 months construction duration. Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other.	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 3.8 km to the east. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP, the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB.

European Site under Consideration:	North Northumberland Dunes SAC
	– Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[32]:	
Name of European Site and its EU Code	The European Site under consideration is Northumberland Dunes SAC (UK0017097).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located approximately 3.8 km east directly from Part B. The European Site is located approximately 8.4 km downstream of Part B via the Mill Burn and Brunton Burn.
European Site size	1,127.27 ha

[32] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	North Northumberland Dunes SAC
Key features of the European Site including the primary reasons for selection and any other qualifying interests	North Northumberland Dunes SAC Citation: The site qualifies under Article 4 (4) of the EC Habitats Directive (2009/147/EC) as it hosts the following habitats listed in Annex I: – Embryonic shifting dunes. – Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes). – Fixed coastal dunes with herbaceous vegetation (grey dunes). – Dunes with *Salix repens ssp, argentea* (*Salicion arenariae*). – Humid dune slacks. – The site also qualifies under Article 4 for hosting the following Annex II species: – Petalwort *Petalophyllum ralfsii*.
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The North Northumberland Dunes SAC – Standard Data Form: The following 'threats and pressures' to the SAC are identified and ranked as 'high': – Changes in biotic conditions (M02). – Pollution to surface waters (limnic & terrestrial, marine & brackish) (H01). – Interspecific faunal relations (K03). – Invasive non-native species (I01). – Outdoor sports and leisure activities, recreational activities (G01). Run-off from roads or pollution from upstream construction activities are not identified as a specific threat.
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for North Northumberland Dunes SAC are quoted below (Publication date 27 November 2018 (Version 3) page 1). "*With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation*

European Site under Consideration:	North Northumberland Dunes SAC
	Status of its Qualifying Features, by maintaining or restoring; – *The extent and distribution of qualifying natural habitats and habitats of qualifying species.* – *The structure and function (including typical species) of qualifying habitats.* – *The structure and function of the habitats of qualifying species.* – *The supporting processes on which the habitats of the qualifying features rely.* – *The population of each of the qualifying features.* – *The distribution of the qualifying features within the site."* Qualifying features: – H2110. Embryonic shifting dunes. – H2120. Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes); Shifting dunes with marram. – H2130. Fixed dunes with herbaceous vegetation (grey dunes); Dune grassland. – H2170. Dunes with *Salix repens ssp. argentea* (*Salicion arenariae);* Dunes with creeping willow; – H2190. Humid dune slacks. – S1395. Petalwort *Petalophyllum ralfsii*.
Assessment Criteria:	
The European Site is situated approximately 3.8 km east of Part B, direct route, and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B. As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European site (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below. The European Site is located approximately 8.4 km downstream of Part B via the Mill Burn and Brunton Burn. The hydrological assessment screens out impacts over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its	

European Site under Consideration:	North Northumberland Dunes SAC
qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents. As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no direct reduction in habitat area because of the works. As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat if invasive species colonise and spread through the European Site. The presence of Schedule 9 invasive plant species was recorded as part of Phase 1 habitat surveys for Part B conducted in March 2019 to inform the ES for the Scheme. Additionally, incidental records of Schedule 9 invasive plants were recorded during riparian mammal surveys undertaken in May 2019 and June 2019. All results were collated in **Appendix 9.1: Habitats and Designated Sites, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before reaching the boundary of the European Site (a distance of approximately 8.4 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will

European Site under Consideration:	North Northumberland Dunes SAC
	allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise the following: – Embryonic shifting dunes. – Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes). – Fixed coastal dunes with herbaceous vegetation (grey dunes). – Dunes with *Salix repens ssp, argentea* (*Salicion arenariae*). – Humid dune slacks These habitats are usually highly saline. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0. This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (**Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
Disturbance to key species	No Impact The European Site is designated for its habitats and floral species. The European Site is situated 3.8 km from Part B. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part B' section above).
Habitat or species fragmentation	No Impact. The European Site is situated 3.8 km from Part B. There would be no fragmentation of the European Site.
Reduction in species density	No Impact. Part B does not support any of the habitats or floral species for which the European Site is designated.

European Site under Consideration:	North Northumberland Dunes SAC
	The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) proposed for Part B would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology **(Ref. 11)** (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference:**

European Site under Consideration:	North Northumberland Dunes SAC
	TR010041/APP/6.3)). The impacts of climate change are therefore unlikely to be compounded because of Part B. Part B would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away.
Interference with key relationships that define the function of the site	No pathways for functional interference with the European Site and its qualifying species have been identified.
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	

European Site under Consideration:	**North Northumberland Dunes SAC**
No significant impacts on the Berwickshire and North Northumberland Coast SAC are anticipated because of Part B, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F.**

3.7. NEWHAM FEN SAC

Table 3-6 – Newham Fen SAC – Part B

European Site under Consideration:	**Newham Fen SAC**
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total Part B area is approximately 120 ha in size of which 75 ha would be permanent required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**). **Traffic Flows** The national speed limit would be retained along the main alignment of Part B. Traffic modelling[33] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to

[33] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	Newham Fen SAC
	emissions generated (discussed in further detail below). **European Site** The Newham Fen SAC (the European Site) is situated approximately 6.1 km (in a straight line) north of Part B. Part B is not connected hydrologically with the European Site via any watercourses.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 6.1 km (in a straight line) north of Part B.
Resource requirements (from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts)	No materials will be taken from or near the boundary of the European Site and no space or land-take in proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or

European Site under Consideration:	Newham Fen SAC
	peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part B can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 6.1 km (in a straight line) north of Part B and is not connected hydrologically via any watercourses. Even in the unlikely scenario that a pollution event or

European Site under Consideration:	Newham Fen SAC
	contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out. In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject to appropriate HAWRAT[34] (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus

[34] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	Newham Fen SAC
	material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled waters receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part Band the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 6.1 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application**

European Site under Consideration:	Newham Fen SAC
	Document Reference: TR010041/APP/6.8), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc	The anticipated start date for the works (mobilisation) is December 2021 and Part B is expected to be open for traffic in 2023. Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 6.1 km to the north. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by the main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The

European Site under Consideration:	Newham Fen SAC
	CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works. – The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[35]:	
Name of European Site and its EU Code	The European Site under consideration is Newham Fen SAC (UK0012890).

[35] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	Newham Fen SAC
Location and distance of the European Site from the proposed works	The European Site is located approximately 6.1 km (in a straight line) north of Part B. The European Site is not hydrologically connected with the European Site via any watercourses.
European Site size	13.46 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	The Newham Fen SAC Designation: The site qualifies under Article 4 of the EC Habitats Directive (92/43/EEC) as it hosts the following habitats listed in Annex I: – Alkaline fens. (Calcium-rich spring water-fed fens)
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Newham Fen SAC – Standard Data Form: The following 'threats and pressures' to the SAC are identified and ranked as 'high': – Air pollution, air-borne pollutants (H042).
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for Newham Fen SAC are quoted below (Publication date 27 November 2018 (Version 3) page 1). "*With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* – *The extent and distribution of qualifying natural habitats;* – *The structure and function (including typical species) of qualifying natural habitats; and* – *The supporting processes on which qualifying natural habitats rely."*

European Site under Consideration:	Newham Fen SAC
Assessment Criteria:	
The European Site is situated approximately 6.1 km north of Part B and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features are anticipated because of Part B. As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European site (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the 'Initial Assessment' below. The European Site is not hydrologically connected with Part B via any watercourses. As such no contaminants released from Part B could reach the European Site via hydrological pathways. As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no direct reduction in habitat area because of the works. No indirect reduction of habitat area via invasive plant species colonisation will occur as Part B is not hydrologically connected to the European Site.
Disturbance to key species	No Impact The European Site is designated for its habitats. The European Site is situated 6.1 km from Part B. Therefore, there would be no disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part B' section above).
Habitat or species fragmentation	No Impact. The European Site is situated 6.1 km from Part B. There would be no fragmentation of the European Site.

European Site under Consideration:	Newham Fen SAC
Reduction in species density	No Impact. Part B does not support any of the habitats for which the European Site is designated. The inclusion within the design of Part B of an appropriate drainage strategy (in terms of best practice and design) proposed for Part B would lead to greater control / attenuation of runoff and capture of sediments / pollution before reaching drainage outfalls. All drainage outfalls were subject to appropriate HAWRAT assessments (refer to **Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, which have all received a Pass result. The assessment has shown that due to distance and diffusion rates, even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality at or near the European Site. As such, there would be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to

European Site under Consideration:	Newham Fen SAC
	improvements in vehicle technology (**Ref. 11**) (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B. Part B would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and its qualifying species have been identified.
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.

European Site under Consideration:	Newham Fen SAC
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the Newham Fens SAC are anticipated because of Part B, either alone or in combination.	
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F**.

3.8. RIVER TWEED SAC

Table 3-7 – River Tweed SAC – Part B

European Site under Consideration:	River Tweed SAC
Description of Part B:	
Size and scale (road type and probable traffic volume)	Part B includes approximately 8 km of online widening between the single carriageway north of Alnwick and the dual carriageway south of Ellingham. The road would be upgraded from a single carriageway to a two-lane dual carriageway to the east of the existing alignment. Part B would also include improvements to Charlton Mires Junction and the associated diversions to private means of access as well as the provision of an overbridge at Heckley Fence. The total Part B area is approximately 120 ha in size; of which 75 ha would be permanent required (including land already owned by the Applicant). These areas are inclusive of the Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**).

European Site under Consideration:	River Tweed SAC
	Traffic Flows The national speed limit would be retained along the main alignment of Part B. Traffic modelling[36] indicates the annual average total daily traffic flow (AADT) along the existing A1 of Part B (north and southbound) without improvement as approximately 16,250 AADT. Upon completion of Part B, two-way traffic along the dualled A1 of Part B would be approximately 20,150 AADT. Further details are presented in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**). This information is relevant to emissions generated (discussed in further detail below). **European Site** The River Tweed (the European Site) is situated approximately 8.9 km (in a straight line) west of Part B. Part B is not connected hydrologically with the European Site via any watercourses.
Land-take	There will be no land-take from within the boundaries of the European Site. There will therefore be no direct impacts on the European Site as a result of land-take during construction or operation of Part B.
Distance from the European Site or key features of the site (from edge of the Order Limits of Part B, shown in **Appendix D**)	The European Site is situated approximately 8.9 km (in a straight line) west of Part B.
Resource requirements (from the European Site or from areas in proximity to the site,	No materials will be taken from or near the boundary of the European Site and no space or land-take in

[36] Traffic modelling completed for 2038 (design year), 15 years after the scheduled opening year (2023).

European Site under Consideration:	River Tweed SAC
where of relevance to consideration of impacts)	proximity to the European Site is required for access, storage or laydown areas. Therefore, no impacts on the European Site are anticipated because of resource requirements during the construction or operational stages of Part B.
Emissions (e.g. polluted surface water runoff – both soluble and insoluble pollutants, atmospheric pollution)	Traffic modelling has been completed to establish the ARN as a result of Part B (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The ARN was reviewed to determine if any affected roads are located within 200 m of the European Site. As Part B does not involve alteration of the roads within 200 m of the European Site, there are no impacts because of road alignment. Part B does not result in changes in traffic along roads within 200 m of the European Site that exceed the criteria of 1,000 AADT for daily traffic or 200 AADT for HDV flows. In addition, there are no speed changes envisaged above the thresholds for either daily average speed or peak hour speed along roads within 200 m of the European Site. A traffic model was also developed to assess Part B in combination with Part A and a further ten road schemes. These schemes were: – A1 Coal House to Metro Centre (open) – A1 Scotswood to North Brunton – A1 Birtley to Coal House – A19 Coast Road – A19 Testo's/Downhill Lane – A19 Norton to Wynyard – Morpeth Northern bypass (open) – Reopening of B6342 bridge over River Coquet in Rothbury (open) – Blyth Relief Road – Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening Further information can be found in **Appendix 5.1: Traffic Data, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). The traffic modelling concludes that none of the roads within 200 m of the European Site meet any of the

European Site under Consideration:	River Tweed SAC
	traffic/alignment criteria and therefore impacts to the European Site as a result of vehicle emissions from Part B can be screened out. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates. The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 8.9 km (in a straight line) west of Part B and is not hydrologically connected via any watercourses. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out. However, taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, no impacts to the European Site are anticipated as a result of pollution events or polluted surface water runoff during the construction or operational stages of Part B. In addition, the design of Part B incorporates a network of detention basins that shall further reduce the likelihood of polluted surface water runoff during operation of Part B. The detention basins incorporate, as applicable, mitigation (as part of WFD compliance) to treat water prior to discharge into watercourses. This includes features such as filter strips and sediment fall bags. All drainage outfalls were subject

European Site under Consideration:	River Tweed SAC
	to appropriate HAWRAT[37] (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)) as part of the design process, and all received a Pass result. Although the potential for direct or indirect impacts can be screened out without consideration of mitigation, these measures provide additional surety that European Sites would not be negatively affected. Overall, no impacts on the European Site or its qualifying features are anticipated as a result of emissions during the construction or operational stages of Part B.
Excavation requirements (e.g. impacts of local hydrogeology)	Excavations associated with Part B would primarily be confined to widening works east of the existing A1 carriageway and establishing compounds. Such works include those associated with structural foundations and landscape reprofiling. The earthworks phase of Part B will comprise extensive cut and fill operations with a volume of 180,000 m^3 cut and a fill of 290,000 m^3. It is intended that surplus material from Part A is utilised to make up at least some of the shortfall in fill material. As detailed in **Chapter 11: Geology and Soils, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**), the Study Area incorporated the Order Limits of Part B plus a buffer of 250 m. This is considered the only area that would be impacted in terms of geology and soils based on the surrounding sensitive environmental receptors and migration potential associated with potential sources of contamination identified on or within the wider general vicinity of Part B. **Chapter 11: Geology and Soils, Volume 3** of the ES concludes that the proposed works would result in at most a direct, temporary, short term, adverse effect on controlled

[37] HAWRAT – Highways Agency Water Risk Assessment Tool – a spreadsheet-based method for determining the quality of discharge from a road site, the tool provides a Pass or Fail for each outfall, and for cumulative assessments of outfalls in close proximity to one another.

European Site under Consideration:	River Tweed SAC
	waters receptors of minor significance. Any effect on controlled water receptors with the Study Area will not affect the European Site due to the distance from the European Site as discussed in the 'Emissions' section above. No impacts on the European Site are anticipated as a result of excavation requirements during the construction stage of Part B. No excavations will be required at the operational stage of Part B.
Transportation requirements	Construction would require the transportation of earth and construction materials within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **Chapter 2: The Scheme, Volume 1** of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 8.9 km from the European Site (in a straight line). Lane closures may be required during the construction works. The affected traffic would be diverted suitably (where full closure is required), with advanced information and signing provided to assist motorists. Diversions would not affect roads or transport links in close proximity to the European Site (within 200 m). As detailed in **Appendix 5.2: Construction Traffic Assessment, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**), the forecast increase in traffic volumes during construction would be between 129 and 139 vehicles per day. Given the extant traffic volumes (refer to 'Size and Scale' section above), this increase is proportionally very small. Therefore, no impacts on the European Site are anticipated as a result of transportation requirements during the construction or operational stages of Part B.
Duration of construction, operation, etc.	The anticipated start date for the works (mobilisation) is December 2021 with a proposed 22 months construction duration. Part B is expected to be open for traffic in 2023.

European Site under Consideration:	River Tweed SAC
	Taking into consideration the absence of any likely impacts on the European Site, the duration of construction and operation of Part B is not anticipated to impact the European Site.
Other.	Impacts to the European Site from noise, lighting and odour are not anticipated. Effects from noise, lighting and odour would be localised within the immediate vicinity of Part B with attenuation distances such that no effects would be anticipated at the European Site 8.9 km to the west. A suite of ecological surveys and assessments have been undertaken on Part B to determine the potential impacts on habitats and protected species. The findings of these surveys are discussed where appropriate within the 'Initial Assessment' section of this table, with relevance to the qualifying species of the European Site. An **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) has been produced, which accompanies the DCO application. A full CEMP would be produced by main contractor detailing measures to manage environmental aspects during construction and to identify best practice for the Scheme. This would include detail on; pollution prevention methods, controls on noise, construction lighting, measures to reduce air emissions, working hours, traffic management, measures to protect surrounding habitat and control of invasive species on site. The CEMP would be communicated to site operatives as part of the induction process prior to the commencement of the works. It is considered in the absence of the measures detailed within the CEMP the European Site would not be significantly impacted. The following procedural steps will be taken: – A DCO would be required prior to works commencing (this DCO application). – Works will be undertaken in accordance with the DMRB. – Relevant working method statements will also be prepared and adhered to throughout the works.

European Site under Consideration:	River Tweed SAC
	The site will be checked for contract compliance on completion of works.
Description of avoidance and/or mitigation measures:	
Nature of proposals	No mitigation is required in relation to the European Site.
Location	N/A
Evidence for effectiveness	N/A
Mechanism for delivery (legal conditions, restrictions or other legally enforceable obligations)	N/A
Characteristics of European Site[38]:	
Name of European Site and its EU Code	The European Site under consideration is River Tweed SAC (UK0012691).
Location and distance of the European Site from the proposed works	The European Site is located on the northeast coast of England. The nearest point is located approximately 8.9 km west of Part B. The European Site is not hydrologically connected with Part B via any watercourses.
European Site size	3,742.65 ha

[38] All information presented in this section was taken from documentation accessible from the JNCC and Natural England websites in September 2019.

European Site under Consideration:	River Tweed SAC
Key features of the European Site including the primary reasons for selection and any other qualifying interests	The River Tweed SAC Designation: The site is designated under article 4(4) of the Directive (92/43/EEC) as it hosts the following species listed in Annex II: – Atlantic salmon *Salmo salar* – Brook lamprey *Lampetra planeri* – Otter *Lutra* – River lamprey *Lampetra fluviatilis* – Sea lamprey *Petromyzon marinus*
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The River Tweed SAC – Standard Data Form: The following 'threats and pressures' to the SAC are identified and ranked as 'high': – Pollution to groundwater (point sources and diffuse sources (H02) – Human induced changes in hydraulic conditions (J02) – Problematic native species (I02)
European Site conservation objectives – where these are readily available	The European Site Conservation Objectives for the River Tweed SAC are quoted below (Publication date 27 November 2018 (Version 4), page 1). "*With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;* *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* – *The extent and distribution of qualifying natural habitats and habitats of qualifying species;* – *The structure and function (including typical species) of qualifying natural habitats;* – *The structure and function of the habitats of qualifying species;* – *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;*

European Site under Consideration:	River Tweed SAC
	– *The populations of qualifying species, and,* – *The distribution of qualifying species within the site".*
Assessment Criteria:	

The European Site is situated approximately 8.9 km west of Part B and located further than 200 m from the ARN. Therefore, no impacts from noise, lighting, odour, emissions or changes in air quality on qualifying features within the SAC are anticipated because of Part B. Of the designated qualifying features, only otter was recorded within or adjacent to the Order Limits of Part B (**Appendix 9.3: Otter and Water Vole Survey Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**))**.** The records of otter comprised two desk study records with no signs of otter recorded during surveys undertaken of all potentially suitable watercourses within 250 m of the Order Limits of Part B**.** The limited number of otter records suggests that the surveyed area supports low densities of otter. In addition, watercourses surveyed exhibit no direct hydrological connectivity with the SAC (**Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). Therefore, even taking into account the large territory ranges (up to 50 km for males) and dispersal distances of otter (greater than 50 km for juveniles) **(Ref. 23),** individuals utilising the surveyed area are unlikely to exhibit connectivity with the SAC. Only one watercourse traversed by Part B (the Shipperton Burn) was determined to be suitable to support protected or notable fish species. Electrofishing surveys undertaken on this watercourse recorded brown trout *Salmo trutta* but no SAC qualifying features (**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)).

The European Site is not hydrologically connected with Part B via any watercourses. As such no contaminants released from Part B could be anticipated to reach the European Site via hydrological pathways.

As detailed in the 'Description of Part B – Emissions' section above, traffic modelling concluded no significant changes to air quality within 200 m of the European site (no affected roads within 200 m). As such, impacts as a result of changes in air quality are not considered further in the *'*Initial Assessment*'* below.

Part B has been assessed not to be hydrologically linked with the European Site. The hydrological assessment screens out impact over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. Therefore, impacts as a result of hydrological connection can be screened out.

Given the intervening distance, no impacts on the European Site are anticipated as a result from changes in water quality or potential pollution/contamination incidents.

European Site under Consideration:	River Tweed SAC
As Part B is considered to have no impact on the European Site, there would be no contribution to in-combination effects. This conclusion has also been viewed and approved by Natural England through their review of the Draft HRA Screening Assessment.	
Initial Assessment:	
Reduction of habitat area	No Impact. Part B does not involve land-take within the European Site. As such, there would be no reduction in habitat area because of the works. No indirect reduction of habitat area via invasive plant species colonisation will occur as Part B is not hydrologically connected to the European Site.
Disturbance to key species	No Impact There will be no disturbance to key species within the SAC due to the significant distance between Part B and the SAC. Otter surveys were undertaken across a Survey Area comprising a total of 13 watercourses within 250 m of the Order Limits of Part B. Surveys were undertaken in September and October 2016 and May and June 2017, with update surveys undertaken in June and September 2018 and July 2019. Ten of the 13 watercourses surveyed were marked as 'unnamed ditches' (**Appendix 9.3: Otter and Water Vole Survey Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). Of the named burns surveyed they all originated (at source) from within 2.7 km of the existing A1. No direct hydrological connectivity was identified between the watercourses in the Survey Area and the SAC. No otter field signs were recorded in the Survey Area. However, two desk study records of otter were returned within and adjacent to Part B and suitable habitat was present within the Survey Area. The home range of otter has been estimated to extend to up 50 km of river for territory holding males. In addition, dispersing juveniles have been recorded travelling even greater distances **(Ref. 23)**. It is considered unlikely that otters utilising the Survey Area also utilise the SAC due to the lack of direct hydrological connectivity between the two. No impact of

European Site under Consideration:	River Tweed SAC
	disturbance is anticipated due to the large potential aquatic habitat available to otter out with the Order Limits of Part B and the likely lack of connectivity between populations referenced above. In addition, the survey results indicate that while suitable otter habitat is present the Survey Area does not support a high density of otter. Of the 13 watercourses identified in the Survey Area only one, the Shipperton Burn, was identified as potentially suitable to support protected or notable fish species (**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). The electric fish surveys undertaken identified brown trout but no SAC qualifying species. The source of the Shipperton Burn was identified to a location approximately 2.7 km to the north-west of the A1 crossing **(Chapter 10: Road Drainage and the Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The burn, therefore, has no direct hydrological connectivity with the SAC. In light of the above information it is considered unlikely that Atlantic salmon, brook lamprey, river lamprey or sea lamprey utilise watercourses within the Survey Area. Therefore, the effect of disturbance to key species arising from human disturbance, noise, lighting, odour or emissions (as detailed in the 'Description of Part B' section above) will not result in LSE.
Habitat or species fragmentation	No Impact. There will be no habitat of species fragmentation within the SAC due to the significant distance between Part B and the SAC. As detailed in the 'Disturbance to Key Species' section above the low densities of otter utilising watercourses in the Order Limits of Part B are unlikely to comprise SAC qualifying individuals. In addition, none of the freshwater fish qualifying species are likely to be present in watercourses that cross the Order if Part B Limits. It is not anticipated that any fragmentation effects will occur as a result of Part B beyond the current baseline conditions (of the existing A1).

European Site under Consideration:	River Tweed SAC
	Therefore, the effect of habitat or species fragmentation will not result in LSE.
Reduction in species density	No Impact. As detailed in 'Disturbance to Key Species' above, of the qualifying species only otter are likely to utilise watercourses within the Order Limits of Part B. Due to the distance of Part B from the SAC (and thus connectivity of otter utilising the Order Limits of Part B and the SAC) and the apparent low densities of otter recorded no reduction in species density will occur. In addition, Part B has been assessed not to be hydrologically linked with the European Site. The hydrological assessment screens out impact over 1 km downstream from Part B. This is due to the distance of the European Site from Part B and diffusion rates. Therefore, Part B will not directly affect SAC habitat and thus species density in the SAC.
Changes in key indicators or conservation value (water quality etc.)	No Impact. As outlined in the 'Reduction in Species Density' section above, it is considered that Part B would not result in hydrological impacts to the European Site due to distance and the high dilution rates of any pollutants carried downstream. Therefore, no changes in key indicators of conservation value are anticipated because of Part B. As Part B would not incur any hydrological impacts to the European Site in isolation, it would not contribute to any in-combination effects.
Climate change	No associated impact because of Part B. The integrity of the European Site may be impacted by changes in sea level or sea temperatures because of climate change. However, vehicle emissions are anticipated to decrease over time due to improvements in vehicle technology (**Ref. 11**) (for further details refer to **Chapter 5: Air Quality, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The impacts of climate change are therefore unlikely to be compounded because of Part B.

European Site under Consideration:	River Tweed SAC
	Part B would not compound the impacts of climate change on the integrity of the European Site.
Describe any likely impacts on the European Site as a whole in terms of:	
Interference with the key relationships that define the structure of the site	Not Applicable. There are no works proposed within the boundary of the European Site and Part B is situated a significant distance away. No pathways for functional interference with the European Site and its qualifying species have been identified.
Interference with key relationships that define the function of the site	
Indicate the significance as a result of the identification of impacts set out above in terms of:	
Reduction of habitat area	Not significant.
Disturbance to key species	Not significant.
Habitat or species fragmentation	Not significant.
Loss	Not significant.
Fragmentation	Not significant.
Disruption	Not significant.
Disturbance	Not significant.
Change to key elements of the site (e.g. water quality, hydrological regime etc.)	Not significant.
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
No significant impacts on the River Tweed SAC are anticipated because of Part B, either alone or in combination.	

European Site under Consideration:	River Tweed SAC
Outcome of screening stage	**Not Likely to be Significant Effects**
Are the appropriate statutory environmental bodies in agreement with this conclusion	Natural England has confirmed agreement with the conclusions set out in this Report for Part B. Agreement is evidenced in **Appendix F.**

4. REFERENCES

Ref. 1 European Council Directive 92/43/EEC 'The Habitats Directive'

Ref. 2 European Council Directive 2009/147/EC 'The Birds Directive'

Ref. 3 Her Majesty's Stationary Office (HMSO) (2017). The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitat Regulations)

Ref. 4 Highways Agency (2009). Design Manual for Roads and Bridges (DMRB), Assessment of Implications on European Sites, HD44/09, Volume 11, Section 4

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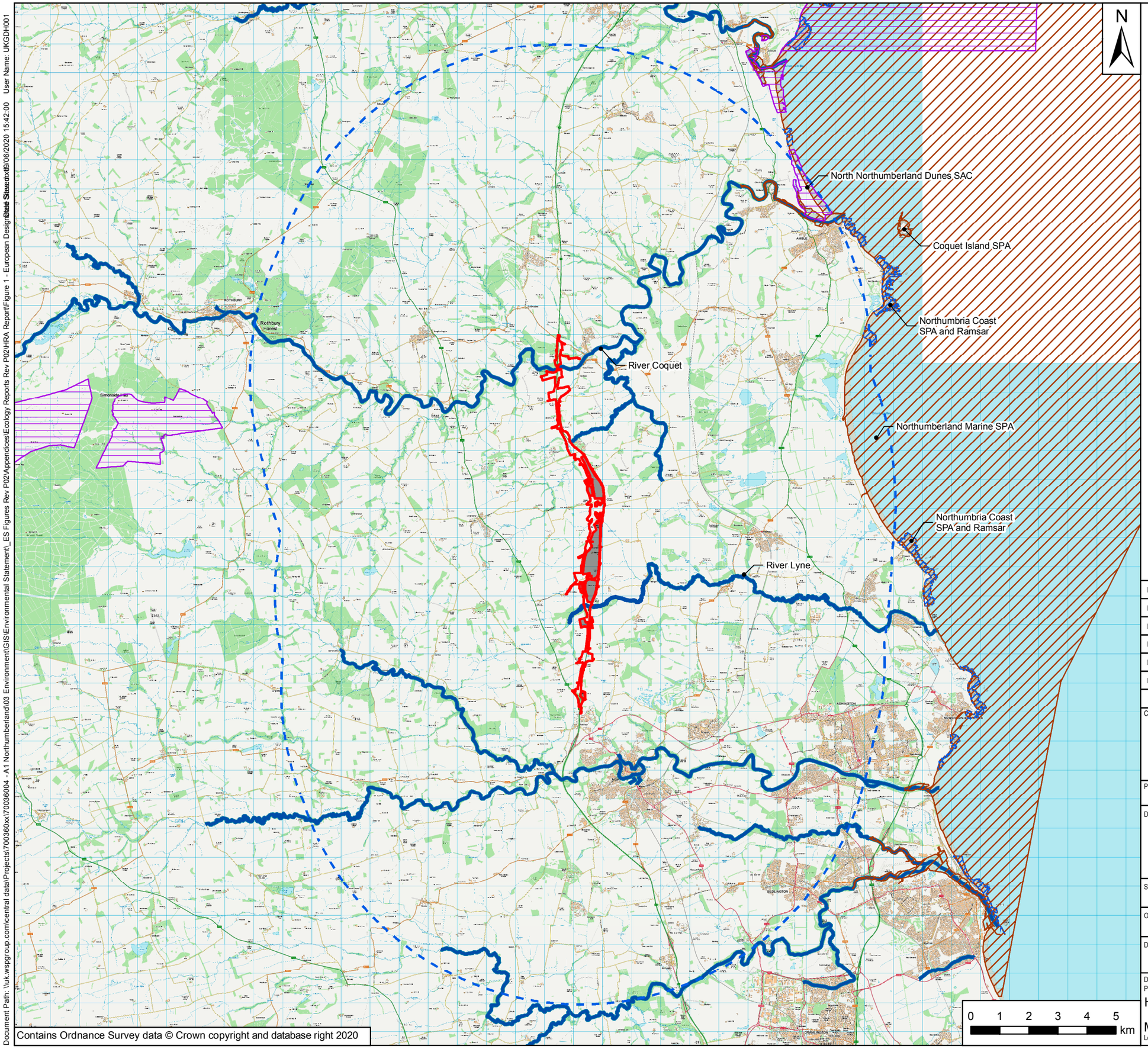
Appendix A

PART A: FIGURES

Document Path: \\uk.wspgroup.com\central data\Projects\700360xx\70036004 - A1 Northumberland\03 Environment\GIS\Environmental Statement_ES Figures Rev P02\Appendices\Ecology Reports Rev P02\HRA Report\Figure 1 - European Designated Sites.mxd 19/06/2020 15:42:00 User Name: UKGDH001



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Rev	Date	Description	By	Chk'd	App'd
P06	June 2020	Scheme Details Updated	GH	JF	KS
P05	12/07/19	Red Line Boundary Updated	GH	JF	KS
P04	18/04/19	Red Line Boundary Updated	GH	JF	KS
P03	08/10/18	Red Line Boundary Updated	GH	JF	KS
P02	12/01/18	SPA Designations Updated	GH	NM	KS
P01	12/12/17	First Issue	GH	NM	KS

Client

highways england

Project Title

A1 in Northumberland: Morpeth to Ellingham

Drawing Title

Figure 1 - European Designated Sites

Scale	Drawn	Checked	Approved	Authorised
1:125,000	GH	NM	KS	DM
Original Size	Date	Date	Date	Date
A3	12/12/17	12/12/17	12/12/17	12/12/17

Drawing Status: For Information

Suitability: S1

Drawing Number

Project	Originator	Volume	Project Ref. No.
HE551459	WSP	6.5	70044136

Location	Type	Role	Number	Revision
M2F	RP	LE	1942	P06

Appendix B

PART A: THE INSPECTORATE SCREENING MATRICES

PART A: THE PLANNING INSPECTORATE SCREENING MATRICES

POTENTIAL EFFECTS

The assessment of potential effects is presented in the form of assessment matrices in accordance with the Inspectorate's Advice Note 10 – 'Habitat Regulations Assessment relevant to NSIPs' (**Ref. 6**).

Potential impacts upon the European Sites that are considered within the assessment matrices are listed in **Table B-1** below.

Table B-1 – Effects considered within the screening matrices for each European Site

Designation	Effects Described in Submission Information	Presented in Screening Matrices As
Northumbria Coast SPA UK9006131	Habitat loss	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Northumbria Coast Ramsar UK11049	Habitat loss	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Northumberland Marine SPA UK9020325	Habitat loss	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
	Habitat loss	Habitat loss

Designation	Effects Described in Submission Information	Presented in Screening Matrices As
North Northumberland Dunes SAC UK0017097		
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Coquet Island SPA UK9006031	Habitat loss	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Waterborne pollution	Emissions

SCREENING MATRICES

The European Sites included within the screening assessment are:

Northumbria Coast SPA
Northumbria Coast Ramsar
Northumberland Marine SPA
North Northumberland SAC
Coquet Island SPA

Evidence for likely significant effects on their qualifying features of each European Site are detailed within **Section 2** of this Report.

Matrix key:

✓ = Likely significant effect cannot be excluded; and
✕ = Likely significant effect can be excluded.
Stages:
C = Construction;
O = Operation; and
D = Decommissioning.

Table B-2 - Matrix 1: Northumbria Coast SPA

Name of European site and designation:		**Northumbria Coast SPA**											
EU Code:		**UK9006131**											
Distance to NSIP:		**9.8 km from Part A in a straight line, 20 km downstream of Part A via the River Lyne and 22.5 km downstream via the River Coquet.**											
		LIKELY EFFECTS OF PART A											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern – Article 4.1.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Arctic tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Purple sandpiper – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Ruddy turnstone – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

a) Part A is located 9.8 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part A.
b) Operation of Part A does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part A.
c) Decommissioning would be restricted within the Order Limits of Part A, located 9.8 km from the European Site, and would not require land from the European Site. Decommissioning of Part A would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part A.
e) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part A.
f) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning of Part A.
g) Part A's construction traffic would be confined within the Order Limits of Part A, 9.8 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the construction of Part A.
h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, the design of Part A incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.5: Drainage Strategy Report, Volume 7** of the ES (**Applicant Document Reference: TR010041/APP/6.7**) that shall further reduce the likelihood of polluted surface water runoff during the operation. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the operation of Part A.

i) Part A's decommissioning traffic would be confined within the Order Limits of Part A, 9.8 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during decommissioning of Part A.
j) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during construction of Part A.
k) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during operation of Part A.
l) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table B-3 - Matrix 2: Northumbria Coast Ramsar

Name of European site and designation:		**Northumbria Coast Ramsar**											
EU Code:		**UK11049**											
Distance to NSIP:		**9.8 km from Part A in a straight line, 20 km downstream of Part A via the River Lyne and 22.5 km downstream via the River Coquet.**											
		LIKELY EFFECTS OF PART A											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern – Article 4.1.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Purple sandpiper – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Ruddy turnstone – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

a) Part A is located 9.8 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part A.
b) Operation of Part A does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part A.
c) Decommissioning would be restricted within the Order Limits of Part A, located 9.8 km from the European Site, and would not require land from the European Site. Decommissioning of Part A would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part A.
e) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part A.
f) The European Site is situated approximately 9.8 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning of Part A.
g) Part A's construction traffic would be confined within the Order Limits of Part A, 9.8 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the construction of Part A.
h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, the design of Part A incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.5: Drainage Strategy Report, Volume 7** of the ES (**Applicant Document Reference: TR010041/APP/6.7**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the operation of Part A.
i) Part A's decommissioning traffic would be confined within the Order Limits of Part A, 9.8 km from European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 20 km and 22.5 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In

addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during decommissioning of Part A.

j) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during construction of Part A.

k) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during operation of Part A.

l) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table B-4 - Matrix 3: Northumberland Marine SPA

Name of European site and designation:		**Northumberland Marine SPA**											
EU Code:		**UK9020325**											
Distance to NSIP:		**8.6 km from Part A in a straight line, 19 km downstream of Part A via the River Lyne and 18 km downstream via the River Coquet.**											
		LIKELY EFFECTS OF PART A											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Common tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Arctic tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Roseate tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Little tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Atlantic puffin – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Common guillemot – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Great cormorant – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
European shag – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Black-headed gull – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Black-legged kittiwake – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
***** The four species listed under Article 4.2 are part of an assemblage qualification.													

a) Part A is located 8.6 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part A.
b) Operation of Part A does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part A.
c) Decommissioning would be restricted within the Part A Order Limits, located 8.6 km from the European Site, and would not require land from the European Site. Decommissioning of Part A would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 8.6 km from Part A. Except for black-headed gull, the European Site does not contain habitat suitable to support the qualifying bird species. Black-headed gull were recorded in numbers equivalent to approximately 2% of the breeding population supported by the Northumberland Marine SPA (peak count of 194 birds; refer to **Table 4** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), SPA supports 8,745 breeding adults (SPA Citation, Northumberland Marine SPA). Part A would not result in the loss of wetland habitats typically used by this species and the loss of arable farmland is not considered significant due to the expanse of arable habitat in the wider landscape, including closer to the SPA. The majority of black-headed gull were recorded flying over the survey area during the breeding bird surveys, rather than using terrestrial habitats within the survey area (refer to **paragraph 3.2.19** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). During the wintering surveys, the majority of birds were also recorded flying over (refer to **paragraph 3.2.18** of **Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). Where flocks of black-headed full were observed using terrestrial habitats of the

survey area, these were outside the Order Limits of Part A and in areas of retained habitat. Therefore, there would be no significant disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part A.

e) The European Site is situated approximately 8.6 km from Part A. Except for black-headed gull, the European Site does not contain habitat suitable to support the qualifying bird species. Black-headed gull were recorded in numbers equivalent to approximately 2% of the breeding population supported by the Northumberland Marine SPA (peak count of 194 birds; refer to **Table 4** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), SPA supports 8,745 breeding adults (SPA Citation, Northumberland Marine SPA). Part A would not result in the loss of wetland habitats typically used by this species and the loss of arable farmland is not considered significant due to the expanse of arable habitat in the wider landscape, including closer to the SPA. The majority of black-headed gull were recorded flying over the survey area during the breeding bird surveys, rather than using terrestrial habitats within the survey area (refer to **paragraph 3.2.19** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). During the wintering surveys, the majority of birds were also recorded flying over (refer to **paragraph 3.2.18** of **Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). Where flocks of black-headed full were observed using terrestrial habitats of the survey area, these were outside the Order Limits of Part A and in areas of retained habitat. Therefore, there would be no significant disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part A.

f) The European Site is situated approximately 8.6 km from Part A. Except for black-headed gull, the European Site does not contain habitat suitable to support the qualifying bird species. Black-headed gull were recorded in numbers equivalent to approximately 2% of the breeding population supported by the Northumberland Marine SPA (peak count of 194 birds; refer to **Table 4** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**), SPA supports 8,745 breeding adults (SPA Citation, Northumberland Marine SPA). Part A would not result in the loss of wetland habitats typically used by this species and the loss of arable farmland is not considered significant due to the expanse of arable habitat in the wider landscape, including closer to the SPA. The majority of black-headed gull were recorded flying over the survey area during the breeding bird surveys, rather than using terrestrial habitats within the survey area (refer to **paragraph 3.2.19** of **Appendix 9.13: Breeding Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**)). During the wintering surveys, the majority of birds were also recorded flying over (refer to **paragraph 3.2.18** of **Appendix 9.14: Wintering Bird Survey Report, Volume 7** of the ES (**Application Document Reference: TR010041/APP/6.7**). Where flocks of black-headed full were observed using terrestrial habitats of the survey area, these were outside the Order Limits of Part A and in areas of retained habitat. Therefore, there would be no significant disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning of Part A.

g) Part A's construction traffic would be confined within the Order Limits of Part A, 8.6 km from European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 19 km and 18 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the construction of Part A.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 19 km and 18 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, Part A design incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.5: Drainage Strategy Report, Volume 7** of the ES (**Applicant Document Reference: TR010041/APP/6.7**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the operation of Part A.

i) Part A's decommissioning traffic would be confined within the Order Limits of Part A, 8.6 km from Part A. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The European Site is hydrologically linked to Part A via the River Lyne and River Coquet; 19 km and 18 km downstream respectively. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during decommissioning of Part A.

j) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during construction of Part A.

k) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during operation of Part A.
l) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table B-5 - Matrix 4: North Northumberland Dunes SAC

Name of European site and designation:		**North Northumberland Dunes SAC**											
EU Code:		**UK0017097**											
Distance to NSIP:		**9.5 km from Part A in a straight line and 21.5 km downstream of Part A via the River Coquet.**											
		LIKELY EFFECTS OF PART A											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Embryonic shifting dunes		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Fixed dunes with herbaceous vegetation ("grey dunes")		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Humid dune slacks		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h,)	× (i)	× (j)	× (k)	× (l)
Petalwort		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)

a) Part A is located 9.5 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part A.
b) Operation of Part A does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part A.
c) Decommissioning would be restricted within the Part A Order Limits, located 9.5 km from the European Site, and would not require land from the European Site. Decommissioning of Part A would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 9.5 km from Part A. Part A does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the construction of Part A.
e) The European Site is situated approximately 9.5 km from Part A. Part A does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the operation of Part A.
f) The European Site is situated approximately 9.5 km from Part A. Part A does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during decommissioning.
g) Part A's construction traffic would be confined within the Order Limits of Part A, 9.5 km from of the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The European Site is hydrologically linked to Part A via the River Coquet; 21.5 km downstream. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the construction of Part A.
h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The European Site is hydrologically linked to Part A via the River Coquet; 21.5 km downstream. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, Part A design incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.5: Drainage Strategy Report, Volume 7** of the ES (**Applicant Document Reference: TR010041/APP/6.7**) that shall further reduce the likelihood of polluted surface water

runoff during the operation of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the operation of Part A.

i) Part A's decommissioning traffic would be confined within the Order Limits of Part A, 9.5 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The European Site is hydrologically linked to Part A via the River Coquet; 21.5 km downstream. Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during decommissioning of Part A.
j) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during construction of Part A.
k) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during operation of Part A.
l) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table B-6 - Matrix 5: Coquet Island SPA

Name of European site and designation:		**Coquet Island SPA**											
EU Code:		**UK9006031**											
Distance to NSIP:		**12.1 km from Part A in a straight line and 24.5 km downstream of Part A via the River Coquet (including approximately 2 km from the mouth of the river).**											
		LIKELY EFFECTS OF PART A											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Common tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Arctic tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Roseate tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Atlantic puffin – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Black-headed gull – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

***** The two species listed under Article 4.2 are part of an assemblage qualification.

a) Part A is located 12.1 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part A.
b) Operation of Part A does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part A.
c) Decommissioning would be restricted within the Order Limits of Part A, located 12.1 km from the European Site, and would not require land from the European Site. Decommissioning of Part A would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 12.1 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part A.
e) The European Site is situated approximately 12.1 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part A.
f) The European Site is situated approximately 12.1 km from Part A. Part A does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning of Part A.
g) Part A's construction traffic would be confined within the Order Limits of Part A, 12.1 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The European Site is hydrologically linked to Part A via the River Coquet; 24.5 km downstream (including approximately 2 km from the mouth of the river). Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the construction of Part A.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The European Site is hydrologically linked to Part A via the River Coquet; 24.5 km downstream (including approximately 2 km from the mouth of the river). Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, the design of Part A incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.5: Drainage Strategy Report, Volume 7** of the ES (**Applicant Document Reference: TR010041/APP/6.7**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during the operation of Part A.

i) Part A's decommissioning traffic would be confined within the Order Limits of Part A, 12.1 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The European Site is hydrologically linked to Part A via the River Coquet; 24.5 km downstream (including approximately 2 km from the mouth of the river). Taking into consideration the intervening distance and natural dilution and settlement rates of any pollutants which may be carried downstream, Part A would have no discernible effect. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part A. There is therefore no functional pollution pathway from Part A to the European Site. As such, there would be no impacts from emissions during decommissioning of Part A.

j) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during construction of Part A.

k) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during operation of Part A.

l) As Part A would have no risk of adverse effects on the European Site or its qualifying resources alone, there would be no In-combination effects of Part A that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Appendix C

PART A: NATURAL ENGLAND CONSULTATION RESPONSE

Kleinschmidt, Georgie

From: Cussen, Robert (NE) <Robert.Cussen@naturalengland.org.uk>
Sent: 23 November 2018 12:30
To: Fenwick, Jack
Cc: Macmillan, Nic
Subject: RE: A1 in Northumberland M2F - HRA Screening Report

Hi Jack

Apologies again for the delay in getting back to you with comments on the above.

I have looked through the HRA Screening report for the proposal and the only area where I would suggest that the HRA may need some additional comment is the Annex C Screening Matrix section relating to emissions which would help to support the overall conclusion of the report.

This section of the report does not appear to address the potential risks of aerial emissions. Given that there is going to be an increase in the number of vehicles using the upgraded road the potential impacts of aerial emissions on the N2K sites distant from the scheme should be referenced. I am assuming that the air quality assessments that have been carried out have indicated that any increase in aerial deposition will occur relatively close to the road and thus would be unlikely to impact on the N2K sites due to the distances involved. If this is the case then it would be appropriate to be evidenced this in the report.

Additionally, with regard to the risk of polluted surface water runoff, it may be appropriate to highlight that the risk of this occurring as a result of the proposal will be minimised by appropriate pollution prevention and control measures deployed during the construction phase and by the network of stilling/balancing ponds during the operational phase rather than relying solely on distance and natural dilution rates as a reason to screen out potential impacts on hydrology.

Apart from the above comments, I concur with the overall conclusion of the report that the proposal is not likely to have a significant impact on the coastal and marine N2K sites located to the east of the proposed scheme.

Happy to discuss further if necessary.

All the best
Bob

Robert Cussen
Lead Adviser
Northumbria Area Team
Natural England
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

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email: robert.cussen@naturalengland.org.uk

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- the Pre-submission Screening Service (PSS) for European Protected Species mitigation licence applications.

From: Fenwick, Jack [mailto:Jack.Fenwick@wsp.com]
Sent: 22 November 2018 09:59
To: Cussen, Robert (NE) <Robert.Cussen@naturalengland.org.uk>
Cc: Macmillan, Nic <Nic.Macmillan@wsp.com>
Subject: RE: A1 in Northumberland M2F - HRA Screening Report

Many thanks for the confirmation Bob.

Jack Fenwick ***BSc (Hons) ACIEEM***
Senior Ecologist

T +44(0)113 395 6275

[redacted]

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From: Cussen, Robert (NE) [mailto:Robert.Cussen@naturalengland.org.uk]
Sent: 22 November 2018 09:54
To: Fenwick, Jack <Jack.Fenwick@wsp.com>
Subject: RE: A1 in Northumberland M2F - HRA Screening Report

Hi Jack

I have down loaded the documents and will get back to you with comments by COP tomorrow.

All the best
Bob

Robert Cussen
Lead Adviser
Northumbria Area Team
Natural England
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

Tel: 02080265449
email: robert.cussen@naturalengland.org.uk

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From: Jack.Fenwick@wsp.com [mailto:Jack.Fenwick@wsp.com]
Sent: 22 November 2018 09:18
To: Cussen, Robert (NE) <Robert.Cussen@naturalengland.org.uk>
Subject: A1 in Northumberland M2F - HRA Screening Report

Hi Bob,

Please find a link below to the HRA Screening report for M2F. I appreciate confirmation of a response by COP tomorrow.

Kind Regards,
Jack

Your credentials:

[redacted]

Simple access via Web Browser:
https://share-ca.wspgroup.com
Access with FTP client via port 22 :
ftp://share-ca.wspgroup.com

The login above will expire on 2018-12-22 00:00:00 , the site and all its data are deleted automatically after it expires.
No backups are done of the FTP server. Keep a copy of your data to avoid any inconvenience.
Contact us at 1-855-977-4873 or by email at ITCanada-ServiceDesk@wspgroup.com for modification of the site.

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Fenwick, Jack

From:	Cussen, Bob <Robert.Cussen@naturalengland.org.uk>
Sent:	09 May 2019 11:13
To:	Fenwick, Jack
Cc:	Macmillan, Nic; Stubbs, Kevin; Achampong, Henri; Morrow, David; UK - Project - A1 Northumberland; 'A1 in Northumberland PCF'; Laura.Colquhoun@highwaysengland.co.uk; Whitehead, Andrew
Subject:	RE: A1 in Northumberland: Morpeth to Felton - HRA Screening Report

Hi Jack

Thank you for supplying the HRA Screening Report relating to the proposed upgrade to the A1 from Morpeth to Felton.

I have checked through the report and I note that the comments made in my email of 23-11-2018 with regard to the earlier draft of the report relating to the potential impact of aerial emissions and surface water runoff have been addressed in the latest draft.

With regard to the consideration of the impact of aerial emissions it may be worth considering highlighting why the potential impacts of aerial emissions beyond the distance of 200m from the Affected Road Network (ARN) are not considered to be significant i.e. that beyond this distance from the ARN the accepted scientific evidence suggests that there will not be a significant impact on sensitive habitats or species. This will no doubt be highlighted in the Environmental Statement (ES) but given that the HRA Screening Report will be publically available document and that there is likely to be considerable public interest in the proposed scheme, it may be worth clarifying why the use of the 200m distance as a bench mark for screening out significant impacts of aerial emissions is important.

I can confirm that I concur with the overall conclusion of the HRA Screening Report that the proposal is not likely to have a significant effect on the coastal and marine N2K sites located to the east of the proposed scheme.

On the issue of potential hydrological impacts of the proposal on the R. Coquet SSSI, although the proposal is unlikely have any hydrological impacts on the N2K sites due to their considerable distance downstream, the ES will need to fully consider the potential impacts of both the construction and operational phases of the proposal on the water quality of the SSSI downstream (unit 5) of the proposed crossing point. As discussed previously, it should also be noted that the SSSI standards for water quality for the R. Coquet will need to be complied with and that for some of these parameters the targets may be more stringent than their corresponding WFD targets.

If you have any queries regarding the above please do not hesitate to contact me.

Regards
Bob

Robert Cussen
Lead Adviser
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Natural England
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

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email: robert.cussen@naturalengland.org.uk

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- the Pre-submission Screening Service (PSS) for European Protected Species mitigation licence applications.

From: Fenwick, Jack [mailto:Jack.Fenwick@wsp.com]
Sent: 02 May 2019 17:01
To: Cussen, Bob <Robert.Cussen@naturalengland.org.uk>
Cc: Macmillan, Nic <Nic.Macmillan@wsp.com>; Stubbs, Kevin <Kevin.Stubbs@wsp.com>; Achampong, Henri <Henrietta.Achampong@wsp.com>; Morrow, David <David.Morrow@wsp.com>; UK - Project - A1 Northumberland <A1Northumberland@wsp.com>; 'A1 in Northumberland PCF' <A1inNorthumberlandPCF@highwaysengland.co.uk>; Laura.Colquhoun@highwaysengland.co.uk
Subject: A1 in Northumberland: Morpeth to Felton - HRA Screening Report

Hi Bob,

Further to your previous review of the HRA Screening Report for the A1 M2F scheme last year, the report has been updated to address your comments and include additional information from the impact assessment process. The report is now considered finalised.

Please could you review and provide comment on the attached within one week. Apologies for the relatively short timescale, however, this is required to maintain the current programme and upcoming deadlines.

Attached is your previous email response, for reference. In response to your comments:

- Information relating to aerial emissions is presented within the 'Emissions' section on pages 6-8. Impacts from aerial emissions have been screened out as the modelling has calculated that there are no roads within 200m of the N2K sites that exceed the assessment thresholds.
- The network of detention basins and their associated treatment features has been referenced as an additional measure to minimise risk of polluted surface water runoff. It is acknowledged in Section 1.3.2 that pollution control/prevention measures are embedded into the scheme. However, in accordance with case law (People vs Wind), the screening assessment was undertaken without taking these into account to determine if LSE would occur in the absence of mitigation. No impacts anticipated due to distance.

The majority of the report remains as previously reviewed, with the same conclusion that the scheme is not likely to have a significant impact on the coastal and marine N2K sites.

If you have any queries, please feel free to get in contact.

Kind Regards,
Jack

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Appendix D

PART B: FIGURES

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N

Key

- Order Limits
- Areas Excluded from Order Limits
- 10km Study Area
- Special Area of Conservation
- Special Protection Area
- Ramsar Site

Northumbria Coast

Newham Fen

North Northumberland Dunes

Northumberland Marine SPA and Berwickshire & North Northumberland Coast SAC

Northumbria Coast SPA and Ramsar

River Tweed SAC

Northumbria Coast SPA and Ramsar

Northumbria Coast SPA and Ramsar

North Northumberland Dunes SAC

Northumbria Coast SPA and Ramsar

0 1 2 3 4 5 km

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Rev	Date	Description	By	Chk'd	App'd
P03	18/06/20	Third Issue	GH	NW	KS
P02	11/11/19	Second Issue	GH	DC	KS
P01	23/11/18	First Issue	GH	LM	KS

Client: highways england

Project Title: A1 in Northumberland: Morpeth to Ellingham

Drawing Title: Figure 2 - European Designated Sites
Page 1 of 2

Scale	Drawn	Checked	Approved	Authorised
1:100,000	GH	LM	KS	NR
Original Size: A3	Date: 23/11/18	Date: 23/11/18	Date: 23/11/18	Date: 23/11/18

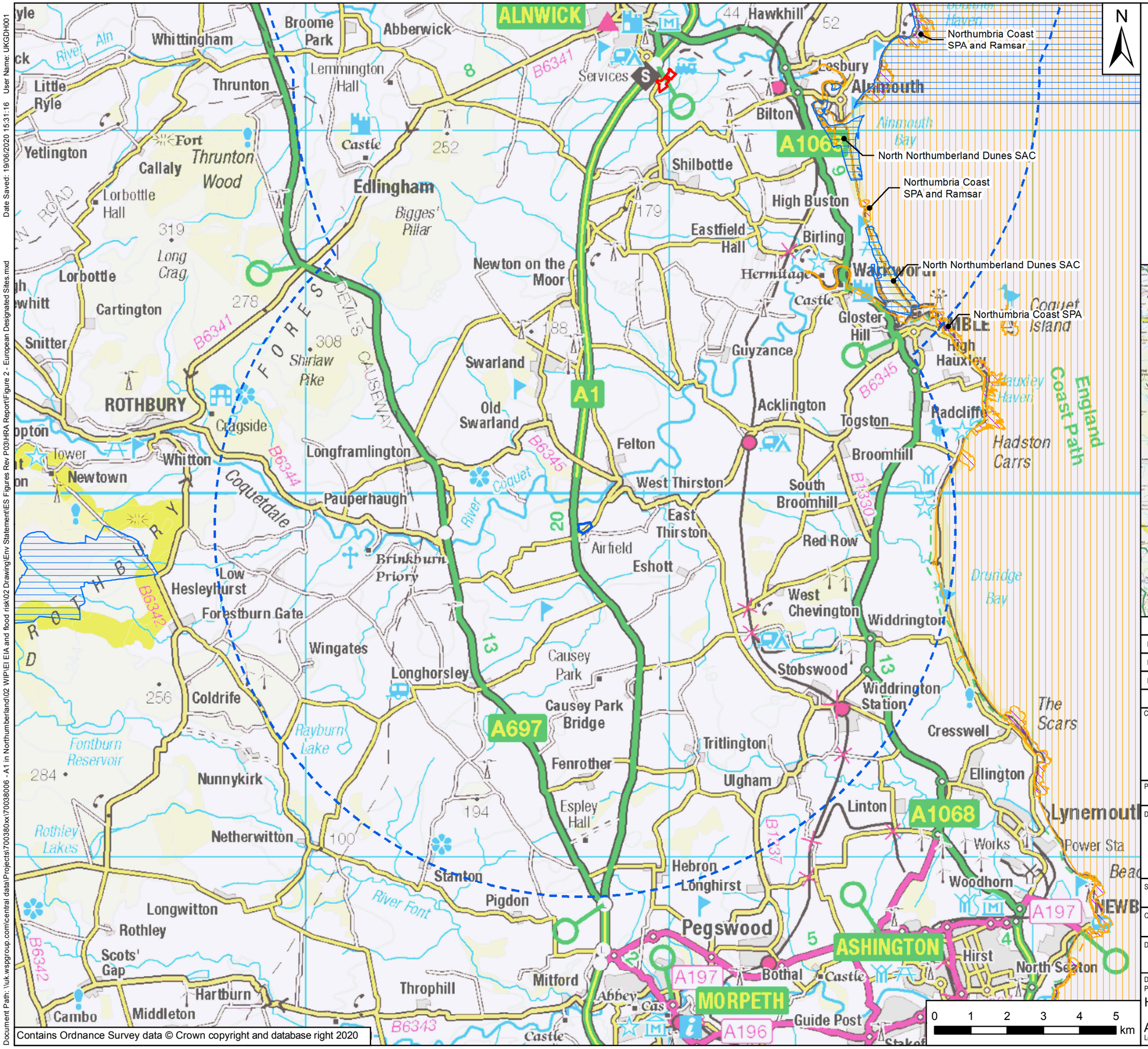
Drawing Status: For Information

Suitability: S1

Drawing Number: Project HE551459 | Originator WSP | Volume EGN | Location A2E | Type RP | Role LE | Number 1638

Project Ref. No.: 70038006

Revision: P03



P03	18/06/20	Third Issue	GH	NW	KS
P02	11/11/19	Second Issue	GH	DC	KS
P01	23/11/18	First Issue	GH	LM	KS
Rev	Date	Description	By	Chk'd	App'd

Client: highways england

Project Title: A1 in Northumberland: Morpeth to Ellingham

Drawing Title: Figure 2 - European Designated Sites
Page 2 of 2

Scale	Drawn	Checked	Approved	Authorised
1:100,000	GH	LM	KS	NR
Original Size	**Date**	**Date**	**Date**	**Date**
A3	23/11/18	23/11/18	23/11/18	23/11/18

Drawing Status: For Information

Suitability: S1

Drawing Number Project	Originator	Volume	Project Ref. No.
HE551459	WSP	EGN	70038006
A2E Location	RP Type	LE Role	1638 Number

Revision: P03

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Appendix E

PART B: THE INSPECTORATE SCREENING MATRICES

PART B: THE PLANNING INSPECTORATE SCREENING MATRICES

POTENTIAL EFFECTS

The assessment of potential effects is presented in the form of assessment matrices in accordance with the Planning Inspectorate's Advice Note 10 – 'Habitat Regulations Assessment relevant to NSIPs' (**Ref. 6**).

Potential impacts upon the European Sites that are considered as part of this HRA Stage 1 Screening assessment are provided in the table below.

Table E-1 – Effects considered within the screening matrices for each European Site

Designation	Effects Described in Submission Information	Presented in Screening Matrices As
Northumbria Coast SPA UK9006131	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Northumbria Coast Ramsar UK11049	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Northumberland Marine SPA UK9020325	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement

Designation	Effects Described in Submission Information	Presented in Screening Matrices As
	Vehicle emissions Waterborne pollution	Emissions
Berwickshire and North Northumberland Coast SAC UK0017072	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
North Northumberland Dunes SAC UK0017097	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
Newham Fen SAC UK0012890	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement
	Vehicle emissions Waterborne pollution	Emissions
River Tweed SAC UK0012691	Habitat loss Spread of invasive plant species	Habitat loss
	Displacement from noise, lighting or odour Displacement from visual disturbance (human presence)	Displacement

Designation	Effects Described in Submission Information	Presented in Screening Matrices As
	Vehicle emissions Waterborne pollution	Emissions

SCREENING MATRICES

The European Sites included within the screening assessment are:

Northumbria Coast SPA
Northumbria Coast Ramsar;
Northumberland Marine SPA;
Berwickshire and North Northumberland Coast SAC;
North Northumberland Dunes SAC;
Newham Fen SAC; and
River Tweed SAC

Evidence for likely significant effects on their qualifying features is detailed within **Section 3** of this Report.

Matrix key:

✓ = Likely significant effect cannot be excluded; and
✕ = Likely significant effect can be excluded.

Stages:
C = Construction;
O = Operation; and
D = Decommissioning.

Table E-2 – Matrix 1: Northumberland Marine SPA

Name of European site and designation:		**Northumberland Marine SPA**											
EU Code:		**UK9020325**											
Distance to NSIP:		**3.7 km (in a straight line) from Part B.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Sandwich tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Common tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Arctic tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Roseate tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Little tern – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Atlantic puffin – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Common guillemot – Article 4		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Great cormorant – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
European shag – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Black-headed gull – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Black-legged kittiwake – Article 4.2 *		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Northern Fulmar		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Great black-backed gull		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Lesser black-backed gull		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Razorbill		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
***** The four species listed under Article 4.2 are part of an assemblage qualification.													

a) Part B is located 3.7 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. Except for black-headed gull, the bird Survey Area does not contain habitat suitable to support the qualifying bird species. Black-headed gull were present within the Survey Area in significant numbers >1% of SPA population during the winter and during the March breeding bird survey. Considering the large influx of wintering birds from the continent increasing the UK population from 130,000 pairs (refer to page 91 of **Ref. 16**) to 2.2 million birds **(**refer to page 392 of **Ref. 17**) and the migratory habits of UK breeding gulls (refer to pages 356 to 360 of **Ref. 15**) these counts are judged likely to be dominated by continental breeding birds not associated with the SPA populations. SPA breeders therefore are likely to form only a low proportion of the gulls counted. The peak count in the March breeding bird survey (1,124 birds

refer to Visit 1 in **Table 4-4** of **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)) represents 12.9% of the SPA breeding population (SPA Citation, Northumberland Marine SPA). However, migratory habits of black-headed gull (refer to pages 356 to 360 of **Ref. 15**) indicate that this peak count is likely to include birds on passage, both to breeding grounds in the SPA and other UK breeding sites and to continental breeding sites. Very few black-headed gulls were recorded during surveys in April 2016, May 2016 and July 2016 with peak counts of 37, 43 and 1 recorded respectively (refer to Visit2 2, 3 and 4 in **Table 4-4** of **Appendix 9.6: Breeding and Wintering Birds Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). Of these records none were recorded within the Order Limits of Part B. The core egg laying period for black-headed gulls in the UK extends from late April to early July (refer to page 135 of **Ref. 18**). Birds recorded in March, therefore, are unlikely to comprise actively breeding birds associated with the European Site. The land take of Part B represents a permanent loss of approximately 52 ha and a temporary loss of approximately 14 ha of agricultural habitat. The maximum forging range of breeding black-headed gull is estimated at approximately 18.5 km from breeding colonies (refer to "*Summary"* on page 288 of **Ref. 20**). The total area of agricultural land within 18.5 km of the European Site is approximately 184,738 ha. The total loss of agricultural land in relation to Part B (both permanent and temporary) corresponds to approximately 0.04% of available terrestrial foraging habitat. The area lost is therefore a small proportion of the available foraging habitat for black-headed gull. In addition, black-headed gulls also forage in the marine environment, which provides an additional foraging resource to the birds. Due to the above factors, in parallel with the low number of black-headed gull recorded during the main breeding period, the loss of foraging habitat is considered to be of negligible effect.

The only invasive plant species recorded in the Phase 1 Habitat Survey Area was Himalayan balsam (refer to **paragraph 9.7.17** of **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 habitat Survey Area (Part B Order Limits and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before discharging into the European Site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0 (refer to "*Impatiens glandulifera*", page 23 of **Ref. 21**). This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (refer to Table 13 of **Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.

b) Operation of Part B does not require land take from the European Site or from any potential non-designated supporting habitat. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 3.7 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) As described in the *'Habitat loss – construction (a)'* section low numbers of black-headed gulls were recorded in the bird Survey Area during the main breeding period (April to July). Higher number of black-headed gull observed in March would likely comprise a high proportion of over wintering or migratory black-headed gull not associated with the European Site breeding population. In addition, black-headed gulls readily habituate to human activity and the highest species count during the surveys to inform this DCO application was linked to on-going human activity (ploughing). Survey results recorded small groups of black-headed gulls within 40 m of the existing carriageway including one record of six birds within 10 m. Tolerance to human disturbance, as evidenced by survey and anecdotal information and referred to in literature (refer to "*Introduction*" on page 200 of **Ref. 22**), in combination with the proportionally small area of potential habitat affected (0.04%) support the conclusion of negligible effects of disturbance during construction of Part B.
e) As described in the *'Habitat loss – construction (a)'* section low numbers of black-headed gulls were recorded in the bird Survey Area during the main breeding period (April to July). Higher number of black-head gull observed in March would likely comprise a high proportion of over wintering or migratory black-headed gull not associated with the European Site breeding population. In addition, black-headed gulls readily habituate to human activity and the highest species count is related to on-going human activity. Survey results recorded small groups of black-headed gulls within 40 m of the existing carriageway including one record of six birds within 10 m. Tolerance to human disturbance, as evidenced by survey and anecdotal information and referred to in literature (refer to "*Introduction*" on page 200 of **Ref. 22**), in combination with the proportionally small area of potential habitat affected (0.04%) support the conclusion of negligible effects of disturbance during the operation of Part B.
f) As described in the *'Habitat loss – construction (a)'* section low numbers of black-headed gulls were recorded in the bird Survey Area during the main breeding period (April to July). Higher number of black-head gull observed in March would likely comprise a high proportion of over wintering or migratory black-headed gull not associated with the European Site breeding population. In addition, black-headed gulls readily habituate to human activity and the highest species count is related to on-going human activity. Survey results recorded small

groups of black-headed gulls within 40 m of the existing carriageway including one record of six birds within 10 m. Tolerance to human disturbance, as evidenced by survey and anecdotal information and referred to in literature (refer to "*Introduction*" on page 200 of **Ref. 22**), in combination with the proportionally small area of potential habitat affected (0.034%) support the conclusion of negligible effects of disturbance during the decommissioning of Part B.

g) Part B's construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A.. As such, transportation activities would be approximately 3.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.7 km east of Part B (in a straight line) and approximately 9.2 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. As such, there will be no reduction in species density. Therefore, impacts as a result of hydrological connection can be screened out. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impa cts from emissions during the construction of Part B.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.7 km east of Part B (in a straight line) and approximately 9.2 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, the design of Part B incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.4: Drainage Strategy Report, Volume 8** of the ES (**Applicant Document Reference: TR010041/APP/6.8**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 3.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.7 km east of Part B (in a straight line) and approximately 9.2 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.
k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.
l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-3 – Matrix 2: Northumbria Coast SPA

Name of European site and designation:		**Northumbria Coast SPA**											
EU Code:		**UK9006131**											
Distance to NSIP:		**4.7 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern – Article 4.1.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Arctic tern – Article 4.1		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Purple sandpiper – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Ruddy turnstone – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

a) Part B is located 4.7 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. The only invasive plant species recorded in the Phase 1 Habitat Survey Area was Himalayan balsam (refer to **paragraph 9.7.17** of **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before discharging into the European Site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0 (refer to "*Impatiens glandulifera*", page 23 of **Ref. 21**). This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (refer to Table 13 of **Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 4.7 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part B.
f) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning.
g) Part B's construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main

Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, the design of Part B incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.4: Drainage Strategy Report, Volume 8** of the ES (**Applicant Document Reference: TR010041/APP/6.8**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.

k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.

l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-4 - Matrix 3: Northumbria Coast Ramsar

Name of European site and designation:		**Northumbria Coast Ramsar**											
EU Code:		**UK11049**											
Distance to NSIP:		**4.7 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Little tern – Article 4.1.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Purple sandpiper – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Ruddy turnstone – Article 4.2.		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

a) Part B is located 4.7 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. The only invasive plant species recorded in the Phase 1 Habitat Survey Area was Himalayan balsam (refer to **paragraph 9.7.17** of **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before discharging into the European Site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0 (refer to "*Impatiens glandulifera*", page 23 of **Ref. 21**). This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (refer to Table 13 of **Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 4.7 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during the operation of Part B.
f) The European Site is situated approximately 4.7 km from Part B. Part B does not support qualifying species of the European Site. Therefore, there would be no disturbance to qualifying species arising from human disturbance, noise, lighting or odour during decommissioning of Part B.
g) Part B's Construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main

Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, the design of Part B incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.4: Drainage Strategy Report, Volume 8** of the ES (**Applicant Document Reference: TR010041/APP/6.8**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.

k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.

l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-5 – Matrix 4: Berwickshire and North Northumberland Coast SAC

Name of European site and designation:		**Berwickshire and North Northumberland Coast SAC**											
EU Code:		**UK0017072**											
Distance to NSIP:		**4.7 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Large shallow inlets and bays; Shallow inlets and bays		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Reefs		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Submerged or partially submerged sea caves; Sea caves		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)
Grey seal		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	×(j)	×(k)	× (l)

a) Part B is located 4.7 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. The only invasive plant species recorded in the Phase 1 Habitat Survey Area was Himalayan balsam (refer to **paragraph 9.7.17** of **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before discharging into the European Site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0 (refer to "*Impatiens glandulifera*", page 23 of **Ref. 21**). This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (refer to Table 13 of **Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 4.7 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 4.7 km from Part B. Part B does not support any of the habitats for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 4.7 km from Part B. Part B does not support any of the habitats for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats arising from human disturbance, noise, lighting or odour during the operation of Part B.

f) The European Site is situated approximately 4.7 km from Part B. Part B does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats arising from human disturbance, noise, lighting or odour during decommissioning.

g) Part B's Construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, the design of Part B incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.4: Drainage Strategy Report, Volume 8** of the ES (**Applicant Document Reference: TR010041/APP/6.8**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 4.7 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 4.7 km east of Part B (in a straight line) and approximately 9 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during decommissioning of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.

k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.
l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-6 - Matrix 5: North Northumberland Dunes SAC

Name of European site and designation:		**North Northumberland Dunes SAC**											
EU Code:		**UK0017097**											
Distance to NSIP:		**3.8 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Embryonic shifting dunes		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Fixed dunes with herbaceous vegetation (grey dunes)		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Dunes with Salix repens ssp. argentea (Salicion arenariae)		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Humid dune slacks		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h,)	× (i)	× (j)	× (k)	× (l)
Petalwort		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)

a) Part B is located 3.8 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. The only invasive plant species recorded in the Phase 1 Habitat Survey Area was Himalayan balsam (refer to **paragraph 9.7.17** of **Chapter 9: Biodiversity, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). As Part B lies upstream of the European Site there is the potential that construction works could spread invasive plant species to the European Site. Invasive plant species could potentially result in loss of European Site breeding habitat for species such as sandwich tern if invasive species colonise and spread through the European Site. Himalayan balsam was recorded in woodland along Shipperton Burn during the riparian mammal surveys. No other Schedule 9 species were recorded at any other locations in the Phase 1 Habitat Survey Area (Order Limits of Part B and a 50 m buffer). The Shipperton Burn flows into the Mill Burn and Brunton Burn before discharging into the European site (a distance of approximately 9.2 km downstream). There are, however, three waterbodies along the length of Shipperton Burn before it reaches Mill Burn, the largest of which is Doxford Lake, where Shipperton Burn enters to the south of the lake, whilst Mill Burn flows from the north of the lake and continues eastwards towards the European Site, via Brunton Burn. These waterbodies will allow any seeds carried from Shipperton Burn to sink or settle out around the shoreline of the ponds/lake. This will greatly reduce the chances of seeds from Shipperton Burn being carried all the way to the coast. The risk of spreading Himalayan balsam to the European Site also depends upon the suitability of habitat for the species within the European Site. Terrestrial habitats of the European Site comprise sand dunes, mud flats and sand flats. These habitats are usually highly saline, particularly mudflats and sandflats. Himalayan balsam is intolerant of saline substrates or saline spray, with an Ellenberg value for salt tolerance of 0 (refer to "*Impatiens glandulifera*", page 23 of **Ref. 21**). This equates to a species which is generally absent from saline sites and if present in coastal situations, only accidental and non-persistent (refer to Table 13 of **Ref. 21**). Overall, based on the above factors the risk of habitat loss due to the spread of invasive plant species is considered negligible.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 3.8 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.

d) The European Site is situated approximately 3.8 km from Part B. Part B does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 3.8 km from Part B. Part B does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the operation of Part B.
f) The European Site is situated approximately 3.8 km from Part B. Part B does not support any of the habitats or floral species for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during decommissioning of Part B.
g) Part B's construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part Band the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 3.8 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.8 km east of Part B (in a straight line) and approximately 8.4 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures will be implemented within the CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency, as detailed in measure S-W8 in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**)) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended sediment occurring during construction of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.
h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.8 km east of Part B (in a straight line) and approximately 8.4 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, the design of Part B incorporates a network of detention basins (as shown on the **Appendix B – Drainage Strategy Layout Drawings** of **Appendix 10.4: Drainage Strategy Report, Volume 8** of the ES (**Applicant Document Reference: TR010041/APP/6.8**) that shall further reduce the likelihood of polluted surface water runoff during the operation of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.
i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 3.8 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The European Site is located approximately 3.8 km east of Part B (in a straight line) and approximately 8.4 km downstream via the Mill Burn and Brunton Burn. Even in the unlikely scenario that a pollution event or contamination incident should occur, it is considered highly unlikely that Part B would result in changes in water quality or quantity that would have any effect on a European Site or its qualifying interests. In addition, best practice measures would be implemented within a CEMP (including adherence to CIRIA's control of water pollution from construction sites and the Pollution Prevention Guidelines (PPG) published by the Environment Agency) to reduce any risk of pollution incidents, contamination of watercourses or increase in suspended

sediment occurring during decommissioning of Part B. There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.

k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.

l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-7 - Matrix 6: Newham Fen SAC

Name of European site and designation:		**Newham Fen SAC**											
EU Code:		**UK0012890**											
Distance to NSIP:		**6.1 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Alkaline fens; Calcium-rich springwater-fed fens		✕(a)	✕(b)	✕(c)	✕(d)	✕(e)	✕(f)	✕(g)	✕(h)	✕ (i)	✕ (j)	✕ (k)	✕ (l)

a) Part B is located 6.1 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. No habitats within the European Site would be lost as a result of construction activities of Part B. As Part B is not hydrologically connected to the European Site via any watercourses no spread of invasive plant species to the European Site will occur during construction of Part B.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 6.1 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 6.1 km from Part B. Part B does not support any of the habitats for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 6.1 km from Part B. Part B does not support any of the habitats for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the operation of Part B.
f) The European Site is situated approximately 6.1 km from Part B. Part B does not support any of the habitats for which the European Site is designated. Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during decommissioning of Part B.
g) Part B's construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 6.1 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**). There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.
h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road**

Drainage and The Water Environment, Volume 3 of the ES (**Application Document Reference: TR010041/APP/6.3**). There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 6.1 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**) There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.

k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.

l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no In-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Table E-8 - Matrix 7: River Tweed SAC

Name of European site and designation:		**River Tweed SAC**											
EU Code:		**UK0012691**											
Distance to NSIP:		**8.9 km from Part B in a straight line.**											
		LIKELY EFFECTS OF PART B											
European Site feature	**Effect**	Habitat Loss			Displacement			Emissions			In-combination effects		
	Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; Rivers with floating vegetation often dominated by water-crowfoot		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Sea lamprey		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Brook lamprey		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
River lamprey		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)
Atlantic salmon		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h,)	× (i)	× (j)	× (k)	× (l)
Otter		×(a)	×(b)	×(c)	×(d)	×(e)	×(f)	×(g)	×(h)	× (i)	× (j)	× (k)	× (l)

a) Part B is located 8.9 km from the European Site in a straight line. Construction activities, including routes for movement of construction vehicles, would not occur within the European Site. As Part B is not hydrologically connected to the European Site via any watercourses no spread of invasive plant species to the European Site will occur during construction of Part B. No habitats within the European Site would be lost as a result of construction activities of Part B.
b) Operation of Part B does not require land take from the European Site. No habitat loss from within the European Site would occur as a result of operational activities of Part B.
c) Decommissioning would be restricted within the Order Limits of Part B, located 8.9 km from the European Site, and would not require land from the European Site. Decommissioning of Part B would therefore not give rise to any loss of habitats from the European Site.
d) The European Site is situated approximately 8.9 km west of Part B. Therefore, no impacts from human disturbance, noise, lighting or odour during the construction of Part B on qualifying features within the SAC are anticipated. Of the designated qualifying features, only otter was recorded within or adjacent to the Order of Part B (**Appendix 9.3: Otter and Water Vole Survey Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). The records of otter comprised two desk study records with no signs of otter recorded during surveys undertaken of all potentially suitable watercourses within 250 m of the Order Limits of Part B. The limited number of otter records suggests that the surveyed area supports low densities of otter. In addition, watercourses surveyed exhibit no direct hydrological connectivity with the SAC. Therefore, even considering the large territory ranges (up to 50 km for males) and dispersal distances of otter (greater than 50 km for juveniles) **(Ref. 23)**, individuals utilising the surveyed area are unlikely to exhibit connectivity with the SAC. Only one watercourse traversed by Part B, Shipperton Burn, was determined to be suitable to support protected or notable fish species. Electrofishing surveys undertaken on this watercourse recorded brown trout but no SAC qualifying features (**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the construction of Part B.
e) The European Site is situated approximately 8.9 km west of Part B. Therefore, no impacts from human disturbance, noise, lighting or odour during the construction of Part B on qualifying features within the SAC are anticipated. Of the designated qualifying features, only otter was recorded within or adjacent to the Order Limits of Part B (**Appendix 9.3: Otter and Water Vole Survey Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). The records of otter comprised two desk study records with no signs of otter

recorded during surveys undertaken of all potentially suitable watercourses within 250 m of the Order Limits of Part B. The limited number of otter records suggests that the surveyed area supports low densities of otter. In addition, watercourses surveyed exhibit no direct hydrological connectivity with the SAC. Therefore, even considering the large territory ranges (up to 50 km for males) and dispersal distances of otter (greater than 50 km for juveniles) **(Ref. 23)**, individuals utilising the surveyed area are unlikely to exhibit connectivity with the SAC. Only one watercourse traversed by Part B, Shipperton Burn, was determined to be suitable to support protected or notable fish species. Electrofishing surveys undertaken on this watercourse recorded brown trout but no SAC qualifying features (**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during the operation of Part B.

f) The European Site is situated approximately 8.9 km west of Part B. Therefore, no impacts from human disturbance, noise, lighting or odour during the construction of Part B on qualifying features within the SAC are anticipated. Of the designated qualifying features, only otter was recorded within or adjacent to the Order Limits of Part B (**Appendix 9.3: Otter and Water Vole Survey Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**)). The records of otter comprised two desk study records with no signs of otter recorded during surveys undertaken of all potentially suitable watercourses within 250 m of the Order Limits of Part B. The limited number of otter records suggests that the surveyed area supports low densities of otter. In addition, watercourses surveyed exhibit no direct hydrological connectivity with the SAC. Therefore, even considering the large territory ranges (up to 50 km for males) and dispersal distances of otter (greater than 50 km for juveniles) (**Ref. 23**), individuals utilising the surveyed area are unlikely to exhibit connectivity with the SAC. Only one watercourse traversed by Part B, Shipperton Burn, was determined to be suitable to support protected or notable fish species. Electrofishing surveys undertaken on this watercourse recorded brown trout but no SAC qualifying features (**Appendix 9.10: Aquatic Ecology Assessment Report, Volume 8** of the ES (**Application Document Reference: TR010041/APP/6.8**). Therefore, there would be no disturbance to qualifying habitats or species arising from human disturbance, noise, lighting or odour during decommissioning.

g) Part B's construction traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part Band the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 8.9 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m) (as detailed on the diversion route plans within the **Construction Traffic Management Plan (CEMP)** (**Application Document Reference: TR10041/APP/7.4**). Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation to surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment, Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**). There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the construction of Part B.

h) The European Site is not located within 200 m of the ARN and therefore effects due to changes in air quality are not anticipated. Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation in surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**). There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during the operation of Part B.

i) Part B's decommissioning traffic would be confined within the Order Limits of Part B (including between Part B Main Scheme Area and Lionheart Enterprise Park Compound; as defined in **paragraph 2.3.23** of **Chapter 2: The Scheme, Volume** 1 of the ES (**Application Document Reference: TR010041/APP/6.1**)) or between the Order Limits of Part B and the Main Compound located within the Order Limits of Part A. As such, transportation activities would be approximately 8.9 km from the European Site. Diversion of A1 traffic would not affect roads or transport links in close proximity to the European Site (within 200 m). Part B is not connected hydrologically to the European Site via any watercourses. The hydrological assessment screens out surface water and groundwater impacts over 1 km from Part B. In relation to surface water this is due to the relatively flat and vegetated topography of the surrounding area and diffusion rates (for further details refer to **paragraph 10.6.1** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**)). The hydrology assessment screens out groundwater effects beyond 1 km from Part B due to the underlying geology and the majority of the underlying soils being slowly permeable, loamy and clayey soils (for further details refer to **paragraph 10.6.3** of **Chapter 10: Road Drainage and The Water Environment**, **Volume 3** of the ES (**Application Document Reference: TR010041/APP/6.3**). There is therefore no functional pollution pathway from Part B to the European Site. As such, there would be no impacts from emissions during decommissioning of Part B.

j) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no in-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during construction of Part B.
k) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no in-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during operation of Part B.
l) As Part B would have no risk of any adverse effects on the European Site or its qualifying features alone, there would be no in-combination effects of Part B that would have effects on the European Site. No in-combination effects would occur during decommissioning.

Appendix F

PART B: NATURAL ENGLAND CONSULTATION RESPONSE

From:	Whitehead, Andrew
To:	Chatterton, David
Cc:	Wilson, Victoria
Subject:	RE: A1 Upgrade, Northumberland, Alnwick to Ellingham
Date:	27 November 2019 18:52:38
Attachments:	image001.png

Hi David

Thank you for sending this through. I have now had an opportunity to look through the document, and can confirm that Natural England agrees with the conclusions.

We do not consider it necessary to undertake an Appropriate Assessment, as there is no likelihood of significant impacts on any European designated site as a result of the development.

Please let me know if you need anything further.

Regards

Andrew

Andy Whitehead
Team Leader – Sustainable Development & Marine
Northumbria Area Team,
Natural England,
Lancaster House,
Hampshire Court,
Newcastle upon Tyne, NE4 7YH

Tel: 0208 0265533 / [redacted]

Please note I work a 9 day fortnight, with alternate Fridays off.

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We are here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

In an effort to reduce Natural England's carbon footprint, I will, wherever possible, avoid travelling to meetings and attend via audio, video or web conferencing.

We now offer free and chargeable advice to land owners and managers planning works on Sites of Special Scientific Interest through SSSI Advice Service.

To help Developers consider the environment Natural England offers two chargeable services:
- the Discretionary Advice Service (DAS) which can provide advice on planning/licensing proposals;
- the Pre-submission Screening Service (PSS) for European Protected Species mitigation licence applications.

From: Chatterton, David [mailto:david.chatterton@wsp.com]
Sent: 18 November 2019 21:07
To: Whitehead, Andrew <Andrew.Whitehead@naturalengland.org.uk>
Cc: Wilson, Victoria <Victoria.Wilson@wsp.com>
Subject: RE: A1 Upgrade, Northumberland, Alnwick to Ellingham

Hi Andrew

Please find a word version attached of the HRA in draft format for your comment and review.

Kind Regards

David Chatterton *BSc (Hons)*
Associate, Ecology

T +44 (0) 161 200 5000
[redacted]

From: Whitehead, Andrew [mailto:Andrew.Whitehead@naturalengland.org.uk]
Sent: 18 November 2019 17:31
To: Chatterton, David <david.chatterton@wsp.com>
Cc: Wilson, Victoria <Victoria.Wilson@wsp.com>
Subject: RE: A1 Upgrade, Northumberland, Alnwick to Ellingham

Hi David

Thanks for this.

Could you possibly send a word version through please so I can add comments via track changes?

Thank you

Regards

Andrew

From: Chatterton, David [mailto:david.chatterton@wsp.com]
Sent: 18 November 2019 14:49
To: Whitehead, Andrew <Andrew.Whitehead@naturalengland.org.uk>
Cc: Wilson, Victoria <Victoria.Wilson@wsp.com>
Subject: RE: A1 Upgrade, Northumberland, Alnwick to Ellingham

Good afternoon Andrew

I hope you're well. As discussed during our call, please find attached a PDF copy of the HRA Screening Assessment for the Alnwick to Ellingham scheme. This is a draft document for your comment. Could you possibly let me know when you anticipate you'll be able to review the document and come back to me with any comments?

Should you have any questions, or prefer to talk on the phone following your review please let me know and I will arrange a conference call.

Kind Regards

David Chatterton *BSc (Hons)*
Associate, Ecology

T +44 (0) 161 200 5000
[redacted]

From: Chatterton, David
Sent: 07 November 2019 15:09
To: Whitehead, Andrew <Andrew.Whitehead@naturalengland.org.uk>; Southwood, Lisa <Lisa.Southwood@naturalengland.org.uk>
Subject: RE: A1 Upgrade, Northumberland, Alnwick to Ellingham

Hi Andrew

Thanks very much for your time last week, and thank you for the below email and information. As discussed last week, I'll send through the draft of the Habitats Regulations Assessment screening for the scheme, which has followed the examples set by Morpeth to Felton.
With regards your question surrounding the likely timescales of DCO submission, this is currently earmarked for March 2020, however, as I discussed during the call, this is subject to change.

Lisa – I discussed during my call with Andrew, a number of points regarding our approach to surveys and protected species assessment to inform the ES for Alnwick to Ellingham. It would be good to discuss these with yourself also, but primarily I'd be keen to arrange a face to face meeting to discuss our proposals for mitigation, which is centred primarily around bats. Would you be able to provide me with some dates of when you would be free for a meeting and the best location for this?

I look forward to hearing from you.
Kind Regards

David Chatterton *BSc (Hons)*
Associate, Ecology

T +44 (0) 161 200 5000
[redacted]

From: Whitehead, Andrew [mailto:Andrew.Whitehead@naturalengland.org.uk]
Sent: 04 November 2019 12:15
To: Chatterton, David <david.chatterton@wsp.com>
Cc: Southwood, Lisa <Lisa.Southwood@naturalengland.org.uk>
Subject: A1 Upgrade, Northumberland, Alnwick to Ellingham

Hi David

Following on from our conversation last week I've now had a chance to have a word with Lisa

Southwood (copied in) who is the Licensing Team Leader, regarding arranging a meeting to discuss the bat issue on the A2E stretch. This isn't a problem, and would be covered by the existing Discretionary Advice contract which is in place for the whole scheme.

As I also mentioned the information required to obtain a LoNI is similar to that required for a draft licence application, and it would therefore be helpful if you were able to send some information through prior to a meeting to enable a brief review to be undertaken to inform discussions at the meeting.

Regards

Andy

Andy Whitehead
Team Leader – Sustainable Development & Marine
Northumbria Area Team,
Natural England,
Lancaster House,
Hampshire Court,
Newcastle upon Tyne, NE4 7YH

Tel: 0208 0265533 / [redacted]

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- the Pre-submission Screening Service (PSS) for European Protected Species mitigation licence applications.

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